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Original Communications.

*SPRAINS AND THEIR TREATMENT.**

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This is a subject of which all practitioners should have a thorough knowledge. We too often slight the lesser and more common forms of traumatism, of which sprains constitute so large a proportion. In my opinion it is almost impossible to have a fracture, dislocation, or contusion, without a sprain of the muscles, tendons, fasciæ, blood-vessels, nerves, or ligaments, except in cases of the most direct violence. This is particularly true in such fractures as Barton's and Pott's.

To make a convenient division of the subject, I will classify sprains as simple and severe.

By simple sprains I mean those sprains where only the muscles and ligaments are stretched to the extent of slightly tearing their fibres, and where only a few filaments of nerves and small blood-vessels are torn. The patient will walk to your office or to the dispensary, even if the ankle-joint be the seat of the sprain, complaining of slight pain and some difficulty in walking. There will be little if any swelling; superficial pain—and

*A paper read before the Philadelphia Chapter of the Jefferson Medical College Alumni Association.

this only when the part is pressed upon or when the joint is rotated, flexed, or extended to the extreme limit. In simple sprains the pain gradually subsides, the swelling passes away in a few days, and the muscles and ligaments regain their accustomed functions.

In severe sprains the muscles, fasciæ, ligaments, nerves, blood-vessels and synovial membranes surrounding the joint are torn, producing impairment if not total loss of motion, with intense pain over the part affected. The patient will feel faint and weak, and express himself as having received a severe shock to his nervous system. In a few hours there will be added heat and swelling, and later discoloration due to the extravasation of blood into the tissue. These symptoms will be present in all sprains, but it is almost impossible for two sprains to be exactly alike. The joints differ from each other in structure, formation, and action; their anatomy is about as widely different as their mode and extent of motion.

When the ankle, knee, hip, wrist, elbow or shoulder-joint receives a severe sprain and presents the symptoms just described, the patient should be put under an anesthetic and the greatest care taken to make a positive and complete diagnosis, not only as to the kind of injury, but as to the extent and degree. I am satisfied that more than half the crippled limbs, anchylosed, stiffened or painful joints which come under the notice of surgeons daily are due to the fact that a proper diagnosis was not made.

How can I tell you in this paper how to differentiate between a fracture near or involving the joint, and a severe sprain, especially should the sprain be of the ligaments to which is attached a small portion of cartilage or of bone, and known in the books as sprain-fractures? To the ordinary medical man I fear I will not be able to do so, though with the patient in view I might be able to show that either one or both were present. To make a diagnosis in these cases, a great deal of tactile sense and years of practical experience must be had, besides a thorough knowledge of the anatomy of the particular joint affected. The touch must be educated so as to be able to distinguish between the rough grating crepitus given when two broken ends of bone rub against each other, as in a fracture, and the sensation when the softer cartilage or ligament glides about under the manipulation, or when the indistinct crepitation produced by the deposit of plastic matter is felt. You must know the amount of natural mobility and usual deformity. You must know the natural position that one bone holds to another; but here an undue amount of swelling may bury the prominences of the bones, and their relative positions be thus hidden from view; or if the synovial membrane or an artery be torn in the sprain, hemorrhage will occur and the synovial sac be thus distended; or the hemorrhage may occur under the skin and between the muscles. At the knee-, elbow- and wrist-joints, where bursæ are common and distended, any or all these signs may be present and may totally obliterate all the anatomical points so necessary in making a correct diagnosis. The diagnosis of a sprain is, therefore, difficult. This is quite contrary to so eminent an authority as Moullin, who says: "It is not often that there is much difficulty in the diagnosis of a sprain, particularly if the joint is a superficial one like the ankle or the knee. The nature of the accident, the sudden onset and peculiar character of the pain, the rapid swelling of the part, and the helplessness of the limb, are in general quite sufficient to convince the patient of the misfortune that has befallen him." He evidently is of the opinion that the patient rather than the doctor ought to know. Continuing he says: "But as, short of a dislocation, nearly every kind of injury that can involve either a joint or the tissues in its immediate neighborhood is called a sprain, this is scarcely sufficiently definite. In no other kind of accident do precision and exactness of diagnosis repay more thoroughly the pain and trouble of careful examination; nowhere is it more essential to form a definite conclusion as early as possible, not only of the kind of hurt sustained, but of its extent and degree."

Now let us refer again to the points of diagnosis. From what I have just said and from my personal observation and experience I must conclude that the rough grating sensation, the pain and the preternatural mobility (deformity in some cases) will be sufficient to decide that it is a fracture and not a sprain. The character of the pain (sometimes likened to the sting of a wasp), the exact point, the tenderness at the point of insertion of the muscles or ligaments, the history given by the patient, the smoother sensation of crepitus of either ligament, cartilage, or fibrous capsule, combined with the experience derived from the manipulation of many sprains and fractures, will enable you to say beyond a reasonable doubt that it is a sprain, even though considerable swelling exists.

Thus far I have said nothing concerning sprains of the vertebral column. If it is difficult to make a diagnosis in sprains of the ankle, knee, wrist, elbow, and shoulder, it is infinitely more so in severe sprains of the vertebral column. The reason is obvious: the structures concerned are exceedingly complicated and so thickly covered with muscles, especially in the lower dorsal and lumbar region, that it is next to impossible to elicit any of the usual symptoms. There are so many separate joints—ninety-nine, I think I was told by Pancoast in the upper lecture-room—in the vertebral column, and each has a separate synovial sac and is susceptible of more or less motion and therefore subject to sprains. In and around all these joints we have the lenticular discs of intervertebral substance, the anterior and posterior common ligaments, the ligamenta sub-flava, the capsular ligaments, synovial membranes, the interspinous and supra-spinous and intertransverse ligaments, the meningo-rachidian veins and arteries of all sizes, nerves, and last but not least the spinal cord and its membranes; and over all these, numerous layers of muscles and fasciæ,—all subject to sprains.

Holmes says the vertebral column serves several distinct offices in the skeleton, some of which appear at first incompatible with others. "It is a pillar for sustaining weight, a girder for connecting distant members, an elastic jointed mechanism for motion, a supporter of the ribs for breathing, and a tube for containing the most vitally important organ next to the brain, the cord." I mention these muscles, joints, ligaments, and use of the vertebral column, because of the almost universal habit physicians have of overlooking and ignoring these structures even in simple sprains, and placing the accident as one of injury to the cord. Especially is this true in railway accidents. The symptoms of simple sprains of the muscles and ligaments of the vertebral column differ only in degree from those in other joints. The tenderness under pressure is usually not restricted to one or two of the spines. The spines will be in a straight line and on a proper level. Some subcutaneous ecchymosis may attend the swelling. The patient will hold himself in a position least attended by motion of the parts.

In severe sprains the symptoms will be augmented. There will be the same inflexible condition and great increase of pain, complicated with hematuria for several days. Especially will these symptoms be increased if the cord, its membranes, a spinal nerve, or any portion of the intervertebral substance be involved. If the cord is involved, the symptoms cannot easily be mistaken, even by the novice. The degree of shock, the insensibility even when there is no brain lesion, the paralysis, the crawling, creeping, tingling sensations down the limbs even to the toes, are noteworthy. The hyperesthesia of the skin usually is most pronounced just above the point of injury, with tenderness and increased sensibility all the way down the vertebral column. The patient will tell you that he felt "something give way" or "a crick" in his back, which is followed by the symptoms varying in degree as above given. In making a diagnosis between severe sprain of the vertebral column and fracture or partial or complete dislocation, I think the symptoms of injury to the cord, particularly paralysis, can be relied upon.

In many of the one hundred and ten cases of fractures and dislocations of the vertebral column which I reported last year in a paper read before the Lehigh Valley Medical Association I found symptoms of sprains at quite a distance from the fracture, evidences of which were plainly visible in the cases on whom the operation of laminectomy was performed. Pain on pressure in a fracture or dislocation is limited to one or two of the spinous processes, and with the deformity will assist you in coming to a definite conclusion; besides these, the posture the patient will assume in bed, and the further fact that he will in a few days, though with difficulty and the exhibition of much fatigue and pain, make an effort to sit up. If he succeeds, and you find by tracing the spines that they are in their normal position, you may confidently conclude that it is a sprain.

Dr. Gallagher, my first assistant, has very kindly tabulated from the register the sprains unassociated with fractures or dislocations, amounting to 1462. These were divided as follows: 484 of the vertebral column; 227 of the ankle; 217 of the knee, 138 of which complicated the synovial sac; 152 of the wrist; 53 of the elbow; 87 of the shoulder; 44 of the muscles of the abdomen; 46 of the muscles of the thigh, leg, and arm; 49 of the muscles of the chest; 7 of the muscles of the neck; 5 of the hip-joint; 88 miscellaneous, which includes sprains of the phalanges and tendons; and 3 of the ligamentum patella.

In the 484 cases of sprain of the vertebral column, sixty per cent. were in the lower dor-

sal and lumbar region, twenty-five per cent. in the atlo-axial joint, and fifteen per cent. in the lower cervical and upper dorsal region.

In the treatment of sprains of the vertebral column, great care and judgment must be exercised. When the symptoms as before stated are local, when there is no paralysis, sensation normal excepting at the point of injury, when the kidneys, bladder and rectum are unaffected, you will know that the cord has escaped, but the possibility of one of the following forms of more abiding and graver troubles must be borne in mind: extravasation of blood into the vertebral canal or in the substance of the cord; inflammation in the fibrous structures near to and extending inward to the meninges or cord, and so leading to compression by inflammatory products or to chronic changes in the cord or meninges; suppurative synovitis or vertebral disease. These can be best avoided by enjoining absolute rest in bed on a hard mattress for a period of from four to six weeks. If the lesion is in the cervical region, large sand-bags should be applied one on each side of the head and neck, with a low pillow so as to keep the parts quiet. Internally I usually administer ten grains of Dover's powder every three or four hours to allay pain and prevent muscular spasm, and from twenty to thirty drops of the fluid extract of ergot four times daily to contract the vessels. In the chronic cases, rest and massage with chloral, and compound soap liniment externally once a day, and small increasing doses of the iodide of potassium, will aid absorption.

In the treatment of sprains in the joints of the extremities I apply oakum, fitting it nicely around the joint so as to make compression on the synovial sac, being careful to avoid making undue pressure on the prominences of the bones in the application of the bandage. I then put the joint at rest by well padded splints, thus securing perfect rest with compression so as to prevent swelling, renewing the bandage twice a day if necessary, giving the patient either ten grains of Dover's powder or one-fourth grain morphine hypodermatically two or three times a day to allay pain and spasm. I sometimes use a Martin bandage over the oakum, should much swelling exist. As to the time the joint should be kept at rest, much difference of opinion exists. I treat each case as in my judgment it demands. Two things must be remembered, and I always try to impress the patient with these facts: that if the joint remain too long unused, there is the possibility—if the synovial sac be torn, almost the certainty—of its becoming anchylosed, so that he may never regain full motion; but if the joint be used too soon, the original injury is maintained, synovitis will occur, and the joint be destroyed. But I am not afraid of inflammation, and will not allow it to overshadow the principle that the function of a joint is motion. I therefore, unless there are other causes, make gentle yet firm passive motion in the direction of flexion and extension on the third and fourth days. I am careful to avoid lateral movements in the ankle- and knee-joints. If the case come to me after some weeks, and there is pain, tenderness, rigidity of the muscles, and stiffness—in other words, a chronic sprain—I anesthetize the patient, break up the adhesions by forcible manipulation, and treat almost as in a recent injury. In these cases massage is an invaluable remedy if properly used, as it restores the skin and muscles to a healthy condition. Under this treatment surprising results have often been obtained.

In the treatment of sprain of the knee-joint accompanied with rupture or effusion into the synovial sac, the same general treatment is employed. Should the effusion which is floating the patella high above the condyles of the femur refuse to respond in a week or ten days, I remove it with the trocar or aspirator and then make firm compression as before.

In those cases of sprain which are really a rupture of the ligamentum patella, I elevate the foot as in fracture of the patella, and use adhesive strips to hold the patella down. In one case I inserted a Levis hook into the centre of the patella, attacked a light dog-chain to it and around the foot-board of the splint, and secured a most excellent union in this non-vascular tissue. In a future case I shall employ the same treatment or cut down and unite with stitches.

Let me say in closing that while in many cases the treatment of sprains is successful, yet many annoying things will happen. Some will improve up to a certain point and then stop. One of the most trying and unsatisfactory is a sprain of the knee-joint where the cartilage becomes displaced, the treatment of which I am not yet ready to report upon.

With moderately good fortune in the treatment of sprains by rest, compression, passive motion, forcible manipulation, friction, and massage, I can confidently recommend this treatment.

THE PHYSIOLOGICAL ACTION OF KOLA.

By G. Walter Barr, M.D.,
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The study of kola dates back several decades, and yet a review of the work done shows little advance along scientific lines, but rather a recounting of former experiments and many apparent contradictions. The chemists have lately thoroughly examined the crude drug and thus eliminated some important contradictions formerly maintained by different observers. It is true that after the lapse of a certain time, especially under certain conditions and with the abstraction of water, fermentative changes occur which eventuate in the formation of caffeine. There is some caffeine in all specimens, but most of the fresh nuts contain too little to interest the student of dynamic action. The glucoside kolanin is the active principle of kola, upon which, without much doubt, the peculiar physiological action of the drug depends; but of course its action is modified (as in all crude vegetable drugs) to some degree by other substances also present. The present writer used both the fresh nuts and their preparations, and also the dried nuts and preparations made therefrom. The action of the latter was the same as that of the former, except in degree, and only occasionally did the well known action of caffeine appear in addition to that of the peculiar active principle of kola.

The work done by the clinicians has been, as a rule, careful and painstaking, and shows less than the average amount of palpable error from hasty generalization. It corroborates the chemical evidence that kola is something more than caffeine when it is carefully analyzed; but the contradictory results make apparent the fact that some observers used a specimen of the drug rich in caffeine and poor in relative amount of kolanin. One is reminded of the historical contradictory work upon pilocarpus before the discovery of jaborine as a factor in its dynamism.

The clinicians reported the effect of kola upon the heart rate and force and upon arterial tension, and its action (primary as regards time) in preventing and lessening fatigue; but any serious work looking toward the analysis of its action upon the human economy, and especially its effect upon the nervous system in detail, is scarce.

Experiments upon the physiological action of drugs affecting the nervous system chiefly are confessedly difficult because of some special sources of error which are not very rare. The action of a drug upon man and its action upon the lower animals are here especially apt to diverge—or, more properly, to vary; then again, it is practically impossible to avoid extraneous conditions modifying cerebral action in vivisection experiments; and finally, the difficulty of finding human beings who can make an accurate observation, unaffected by the reasoning faculty, and relate this observation to another, is infinitely greater than most people imagine.* The writer has taken the greatest pains to avoid the many pitfalls inherent in a search for truth in subjective experimenting; and with years devoted to this psychological matter, he believes he has succeeded. The method used was to select a sufficient number of men of different types, mental and physical, all of whom had previously proved their training in making observations, who were familiar with the various sources of error in observing, and who knew their physiology and had the practical skill to detect and measure variations of physiological action. To each of these was given, under practically the same conditions, the same dose at the same time. The experiments lasted over a month of time, and variation of dose was especially attended to. No subject came in consulting contact with any other, and each turned in to me a written report of his observations each day. Of practical importance, as bearing on the value of the work, is the fact that there was not a single conflict of evidence, when the entire work came to be tabulated and digested, every variation of effect having a corresponding variation of dosage, personal equation of sensitiveness which was constant, or other variation of conditions and premises. A large number of correlated observations were obtained from lay patients who did not have any idea of what they were taking, but these have a less value and only as corroborating the gross features of the experimental results.

I found the dynamic action of kola to be as follows in the territory covered by the experiments:

Nervous System.—From medium doses, euphoria and an increase of intellection, slight in both rapidity and clearness of thought, and marked in capacity for sustained effort. This effect was by large doses reversed, with the production of mental

*Barr on "Basic Errors in Therapeutics," Transactions of Iowa State Medical Society, vol. xii, p. 173. 1893.

fatigue and cerebral malaise, running into actual mental paresis with a striking special effect upon the memory; one man at the table, when asked to pass a dish, found it impossible to remember the article until he could reach it with his hand; another made a determined effort to remember a single line in Gray's Anatomy after closing the book, and failed; another, a medical senior student who "never misses a question," "struck" because he could not answer the simplest questions in the recitations, and his class standing and candidacy for honors were of more importance to him than the dynamic action of kola. These are but examples of many similar observations. This cerebral paresis occurred only from large doses, and never as an after-depression; there was no after-depression in any case. For some years I have been teaching that the term "stimulation" should be divided so as to express two different ideas —one a true increased activity, followed always by depression; and the other a tonic action which increases power, and is reversed into overstimulation paralysis, but is never followed by after-depression. Referring to the cerebrum, the former class always cause a "habit;" the latter class never do. Kola belongs to the cerebral tonic-stimulants (a new word is required here), and there is certainly no tinge of habit in its effects. Medium doses produce that insomnia without excitement which is simply the lack of desire and apparent need of sleep, and is exactly like the inability to sleep an hour after arising in the morning; large doses cause a mental languor, dullness, and sleepiness, and a deep sleep which is not at all physiological and which lasts for twelve hours or more, followed by no sense of rest. Large doses produced vertigo, sense of fullness in the head, or frontal headache, in constant ratio to the size of the dose—a train of symptoms which suggested valerian toxicity strongly in its subjective sensations. Acetanilid had no effect on the pain, which was persistent until removed by sleep or exercise. The reflexes and sexual desire and capacity were slightly increased by small (and markedly lessened by large) doses; the desire for tobacco was much lessened, but without any repugnance to the weed—one simply did not smoke so many cigars per day while under the influence of medium doses, and did not think about it until afterward. The cerebral malaise from large doses suggested to the smokers the need of tobacco, but much smoking failed to remove the depression, mental or physical, even in those who do their best mental work behind a lighted cigar.

Logically, the drug acts upon the cells of the cerebrum, because the effects are entirely out of proportion to the effect upon the circulation, and are quite different from any that can be produced through the circulatory system. The selective action upon the memory also shows this. The sleep is a coma from overstimulation paralysis, and worse than useless therapeutically. The effect upon the reflexes and venery is a stimulation and an overstimulation paresis and paralysis of parts of the sympathetic system. The effect upon drug habits is simply that the euphoria renders other beverages unnecessary in the search for Utopia; there is no real effect upon the "habit" except as continued non-use destroys it.

The Digestive System.—In two hours after its administration, kola causes a marked increase in peristalsis and secretion, increasing directly with the dosage through a laxative effect, catharsis, and great diarrhea, with proportionate pain; the stools are natural in color when lax, and dark during the diarrhea, the latter removing a coat from the tongue and the clinical symptoms of "biliousness." The administration of alcoholics and aromatics relieves the pain but does not prevent the diarrhea. The effects are exactly the same whether kola is administered to a full or an empty stomach. From full doses there is a marked decrease of appetite during the primary action, and increased appetite as an after-effect. Administered after meals, kola increases the digestive power very markedly—proteids, fats, and carbohydrates.

The inference is that kola affects to a marked degree the sympathetic innervation of the muscular layer of the digestive tract and the secretory glands; the increase of peristalsis may cause the increased secretion. That the action is local irritation, is negatived by the effect not beginning for two hours; by its non-variation according to the amount of food in the stomach; and by the great action of the drug upon the sympathetic system, which a *résumé* of the whole action shows. The after-increase of appetite is probably due to the increased digestive power and largely to the less quantity of food taken previously during the primary action of anorexia.

The Circulatory System.—The heart-force is increased by kola, but the increase in the rate was not uniform and was no more than

the normal variation which is easily produced by mental action. It is manifestly impossible to make accurate determinations of the effect upon the heart-rate of a drug in the human subject in the manner of these experiments. Tension increased markedly. There was no constant effect on temperature, but sometimes a rise in direct ratio to increase in heart-action.

The conclusions are that the effect on the heart is not centric, because it is out of proportion to the cerebral increase in functional activity, and also because it lasts longer than the cerebral effects. In view of the general sympathetic stimulation, it is probable that the cardiac ganglia are the seat of the action upon the heart. The idea that there was stimulation of inhibition was abandoned because the prolongation of the diastole reported by previous observers was not constantly verified. The tension being increased much out of proportion to the increase of heart-force, gives the conclusion that the vaso-constrictors are stimulated.

The Muscular System.—There is a primary lessening of fatigue from medium doses, with increase of muscular languor and desire for rest as the result of large doses. One man indulging in athletic exercise to a great degree in a contest found the after-soreness delayed twenty-four hours and lessened in degree, but still very perceptible. Here, as in the nervous system, there is a marked overstimulation depression, but an entire absence of an after-depression. There is not the increase of power which comes from true stimulants, but only an increased capacity for prolonged exertion—the quantity of force per time unit is not increased, but the number of time units is extended. The effect upon the muscular system is in exact ratio to that upon the nervous system in every case, the overstimulation depression appearing in both simultaneously. An important fact, thoroughly verified, is that muscular exertion is the greatest antagonist to the action of the drug upon all parts of the body. The dynamic action of the drug is exactly in direct ratio to the dose and inverse ratio to the amount of muscular exertion during its time of action. Even toxic effects already begun come down to a lessened degree of dynamic action, stimulation replacing overstimulation depression, etc., when violent exercise is begun.

The Urine is lessened in quantity, the decrease being of both solids and water. The effects of the caffeine in the drug and of the peculiar active principle itself upon retrograde metamorphosis will account for the former, and the contraction of the nephritic arterioles for the latter.

The duration of the dynamic action of the dose is nearly six hours, although there was some variation in this. A second dose administered before the effects of the first had disappeared produced the manifestations of twice the quantity taken at once, both doses being in the blood at once. The larger the dose, the longer was the dynamic action prolonged, distinctly toxic doses acting for twelve hours or more. The effects began in about thirty minutes from liquid preparations, and the dynamic action was near the maximum in an hour and a half or two hours.

The author has carefully refrained from mentioning definite weights of drug as being administered, because this would certainly lead to error and probably dangerous experiences among those who pay him the compliment of utilizing his work here set forth. The quantity which will have but the slightest effect upon one individual, will produce actually alarming toxism in another. In seven persons taking the same dosage under the same conditions at the same time, there were produced seven distinct and nicely graded variations of intensity of action. The dose of kola is the quantity sufficient to produce the desired action, and anything more definite than this had better be left unsaid.

Under the same conditions of administration, a variety of different effects were noted in different individuals, but each and every one of these variations was due to a variation of degree of action upon some part of the sympathetic system. That is to say, a variation of sensitiveness causing a reversal from overstimulation out of synchronism in some special locality, was the key that explained all the apparent contradictions observed. It also explains the contradictory statements hitherto published about the dynamic action of the drug, in large degree. According to the author's law*, this drug, which greatly affects the sympathetic system, should discover a large number of idiosyncrasic individuals; and he has no hesitancy in prophesying that within a year the journals will be full of reports of untoward effects of kola and a large crop of "unusual" symptoms due to the drug.

An important thing discovered in these investigations was, that the coincident admin-

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*"Idiosyncrasy and Drugs," THERAPEUTIC GAZETTE, March, 1895.

istration of strychnine or nux vomica somewhat synergized the tonic action of kola, and strongly antagonized its toxic effects from large doses. One-fortieth of a grain of strychnine prevented, to a great degree, the unpleasant depressant effects of massive doses. It is possible to overbalance the strychnine with a preponderance of kola, but the antagonism is as great as between any two drugs. The antagonism does not occur in the digestive system, which is almost a matter of course.

RÉSUMÉ.—Kola has a special action upon the cerebro-spinal and sympathetic nervous systems which is not at all like that of caffeine, and is due to some other active principle. The primary action is an increase of functional power in the cerebro-spinal system, and an increase in functional activity in the sympathetic system; overstimulation reverses the action, as is the physiological rule, but there is no after-depression of the cerebro-spinal system and none of the sympathetic except from massive doses, and then only of the portion most sensitive to the action of the drug—certain reflexes and venery. The overstimulation paresis of the cerebrum has marked physiological effects which are dangerous if the toxism be continued. (One is reminded of the action of atropine and the French teaching of half a century ago, verified in the dispomania institutions lately, that atropine continued produces insanity.) The action of kola upon the cerebro-spinal system has marked manifestations in the muscular system. The action upon the sympathetic causes increased peristalsis and secretion, contraction of the arterioles and consequent rise of tension, the latter being partly due to increased heart-action, and this last being another manifestation of stimulation of the sympathetic ganglia. There is primary increase of the reflexes and venereal power, which is reversed from overstimulation of that part of the sympathetic before the other less sensitive portions are depressed. The urine is lessened. There is no approach to the formation of a habit, and no tolerance established. Euphoria is marked. Excretion often does not take place for over six hours, and the overlapping of doses sometimes produces toxic effects when each dose was medicinal. There is such a variation of susceptibility that no posological data can be of value. The drug has a decided action of its own, not duplicated in the materia medica, and is hence valuable, but, like all powerful drugs, must be used with discretion, and, like all drugs acting markedly upon the sympathetic system, is apt to produce untoward effects in certain individuals. The antidotes for its toxic effects are strychnine and hard exercise. Death will probably come from cardiac paralysis, but it ordinarily requires massive doses to produce this. The dry nuts produce the same effects as the fresh ones, but require a larger dose, and the effects of caffeine are sometimes shown by them parallel to those of the peculiar active principle of kola. There is no difference in quality or degree of action between the crude drug and any of its preparations as made by two of the largest importers.

Therapeutics.—The therapy of kola has recently gotten out of the bounds formerly set for it as simply a muscular tonic. The author has used it for the following conditions, with the results stated: In acute alcoholism its tonic effect in medicinal doses upon the cerebrum is shown in its great power as a "pick-me-up;" it removes the signs and symptoms of drunkenness more rapidly than any other agent, and the after-effects are much modified for the better; it is much better here than the bromides, which are so popular. For dipsomania it is useful from the sense of well-being which it produces, equal to gold and more than arsenic; it is extremely valuable in its effect upon digestion, with a permanent toning up of the digestive apparatus of such patients, this being an important part of the treatment; it has no special direct effect upon the habit, and for this latter purpose is inferior to atropine in energy. It is an aid to one quitting the use of tobacco because of the euphoria it produces, which replaces the tobacco-cheer until the patient has quit the habit long enough to no longer feel the need of the weed. For individuals of average stamina it is sufficient pharmaceutical aid in breaking the tobacco habit.

Reflex storms from various irritative pathologies are subdued by kola in full doses, paralyzing the reflexes. But its greatest value is in so building up a debilitated nervous system that a permanent cure of this condition results.

It has a certain value in cases of cardiac weakness; but many other drugs are more to be depended upon for the acute attacks, and its chief use is in permanently toning up the innervation of the heart, thus removing the fundamental pathology rather than treating the symptom.

In the treatment of melancholia it is the equal of gold, and is of real value in those

cases of temporary melancholia of mild degree which occur so often in the course of various affections.

In neuralgia it is useful in direct ratio to the amount of general nervous debility present; in most cases it is much inferior to several other drugs in common use. It is useful as a correlative treatment in chronic cases, replacing iron and other tonics.

In insomnia, great care must be taken not to produce the coma-sleep which is the result of the administration of large doses and which will aggravate the disease; in insomnia from overwork, neurasthenia, and similar conditions, kola is useful in small doses only, not given near bedtime, and acts slowly by removing the nervous tire which is behind the inability to sleep. As a pure hypnotic it is effective only in doses approaching the toxic, and the effect of its continued administration is very bad, although fortunately ceasing with the stopping of the drug.

In convalescence from acute diseases, kola is valuable when the dosage is accurately attended to, increasing digestion and assimilation and restraining waste in small doses, yet the overstimulation depression of large doses is distinctly harmful; the combination with strychnine is especially indicated here. The same remarks apply to its use in that group of symptoms due to paresis of some part of the sympathetic nervous system.

Eckley gives us a strong and able argument* in favor of the proposition that *la grippe* has for its basic pathology (at least next to a primary microbic cause) paralysis of the sympathetic. Certainly the drugs useful in that affection all strongly stimulate the sympathetic system. *A priori*, then, kola should be useful in that disease; my clinical experience is that kola is nearly if not quite as useful here as are the coal-tar derivatives in common use; it is invaluable in treating the after-depression which remains when the acute symptoms have departed; it is also very useful to relieve the sense of weakness which is one of the symptoms of the disease. But here again must be emphasized the fact that the least overdosage will do harm rather than good, and that the dose of kola for a given patient is no certain number of grains or centigrammes.

In dyspepsia of atonic origin kola is the best single drug we have to-day: increasing both secretion and peristalsis, keeping the bowels loose, toning up the nerve-supply of the digestive tract, it meets the pathology at every point. Having begun its use as an adjuvant to other treatment, the writer in most cases now discards the other measures and retains the kola. When any adjuvant is needed, it should be strychnine or nux vomica, for reasons stated before, and if there is a tendency to pain in the abdomen the kola should be given with aromatics. In chronic constipation it is a rival of *Rhamnus purshiana*, and like the latter does not require a constantly increasing dosage, but removes the paresis of the muscular coat of the intestine and promises a permanent cure.

Kola is extremely useful, properly administered, in cases of acute nervous fatigue from overwork or worry. Taken in small doses regularly for a week or so, all the nervous symptoms disappear, including the insomnia and fretfulness, a sense of well-being replaces the feeling of impending harm, capacity for work returns to the norm, and the patient is gratified beyond expression. But a slight overdosage will do harm, and strychnine will always be given simultaneously in future by the writer to prevent danger of toxism and as an adjuvant.

It is fortunate that the drug which tends to prevent harm from an overdosage of kola is also one which synergizes its therapy in practically every case. The writer has not used the combination of kola and strychnine much hitherto, as that would have vitiated the experimental value of the results. But as a matter of good practice he is convinced that the two should be combined usually in whatever use is made of kola therapeutically.

At the present writing the bibliography of kola contains reports of its use in the following conditions in which the present writer has not had opportunity to thoroughly test its value clinically: The cases of asthma reported quickly cured by kola are some of them really cases of cardiac dyspnea, from the descriptions in the reports themselves, and such cases are rationally treated with kola with doubtless brilliant results; the term "asthma" has now a wide meaning in general use, but the classical asthma which is a spasm of the lung lobules can hardly be benefited by a drug which markedly stimulates the sympathetic innervation of these same lobules, as kola does; even toxic doses do not paralyze the sympathetic vaso-motors until after the other cerebral effects are dangerous, and it is probable that heart-paralysis will be coincident with the other—so that even large,

*Transactions of Iowa State Medical Society, 1892, p. 93.

overstimulant doses are not available here.—In the treatment of morphinomania, kola will be useful like gold is, but will not be a decided improvement upon the latter; only in very mild cases will it produce sufficient euphoria to replace the morphine, judging from the energy of its dynamic action and experiences in other drug habits.—The cases of diarrhea reported cured in a striking way by kola are chiefly cases of chronic diarrhea, and the tonic effect upon the intestine together with the improvement in the digestion may have a value here; the percentage of tannin in all the samples hitherto analyzed is too small to account for any anti-diarrheal action, and it is probably in atonic diarrheas that kola will be found useful.—The author would prefer not to depend upon kola in surgical shock in the beginning, but can readily see its great use in holding up the patient after strychnine, alcoholics and other drugs have stimulated him out of immediate danger.—The effect of kola in improving digestion, toning the digestive tract, and depressing the reflexes, in medium doses, accounts for its reported usefulness in the vomiting of pregnancy; the psychological element here must not be forgotten.—In consumption it should be a valuable reconstructant, and the reports show its value clinically in this disease to that extent. Kola contracts the arterioles to an extent which makes the reported good results of its administration in hemoptysis easy to believe. It has been used in pneumonia, and has a value in the asthenic stage of this disease, but again appears the necessity for the greatest caution in its administration.—Monavon and Perroud, experimenting upon animals, are the only investigators who agree with the present writer that kola is not diuretic, but rather anuretic. All the others, even those whose experiments were confined to a limited field, as most of them are, state that it is markedly diuretic, and some report good results in the treatment of dropsy. It is an absolute certainty that specimens of kola and its preparations which are to be found in the market to-day and obtained from two of the largest manufacturers of kola products in the world, do not produce diuresis in the average human inhabitant of the western United States under normal conditions. If some specimens of the drug, some types of men, or some other peculiarity of condition induce diuresis, this effect will be irregular in its appearance and not very valuable therapeutically. The drug should be useful in dropsy of cardiac origin by removing the cause of the symptom, and probably in that of hepatic origin by increasing the functional activity of the liver; but it can never replace any other drug used as a pure diuretic.

Every one with the least experience with kola has noticed its power to prolong active exertion without fatigue; it is being advertised in some quarters directly to the athletic "profession" as an aid in winning races, and certificates of its efficacy are published by the score from prize-winners. While it has not the horrible train of consequences that follow the use of cocaine for this purpose, yet the author and his assistants feel in duty bound to file a warning that the use of kola in lay hands will bring a crop of disastrous results. The variation in susceptibility to the drug will cause some ambitious athletes to lose a lot of money for their backers, even if they do recover physically in time. In a brochure issued by a pharmaceutical house which ought to know better, is a report direct from an excellent ministerial educator stating the good effects of a certain preparation of kola in the nervous exhaustion of college tutors, to whom he seems to have recommended it; kola is not a drug which can be entrusted to the laity with safety, and they should be so informed at every opportunity. That kola has, like many other drugs, a high value in certain directions when used rationally, is manifest.

QUINCY, ILLINOIS.

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*SCURVY IN BOTTLE-FED BABIES.**

BY FRANK W. GARBER, M.D.,
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Scorbutus is one of those diseases with which the practitioner of to-day has but little clinical acquaintance. The older physicians, and especially those of seaboard towns or those who have served in the Army or Navy, can recall it as one of the scourges of both land and sea. To have learned its causes and thoroughly provided against them—for it is only now and then in these days that a case is found—seems to me one of the most splendid monuments scientific preventive medicine has erected to itself. So many brilliant advances have been made in surgery in the last few years that we are apt to be dazzled by the splendor of its results, and to forget the even greater lustre of preventive medicine. If the knife has invaded regions

* Read before the Muskegon Medical Society.

heretofore sacred and untouched, and by its magic brought life and health and strength where before were only disease and death, Medicine, tender and all-merciful, has stretched forth her almost divine hand and said, "Disease, be no more!" For eighty years not a single case of scurvy was seen in the British Navy. For a thousand years before, it had been the one great enemy of army and navy. It killed more soldiers in the Crimean War than bullet or sword or all other causes combined.

It is well for us to recall such things as these, because too often medicine and surgery are compared only to glorify the latter.

Though the history of scorbutus is coexistent with the history of medicine, it is only during the last twenty years that the disease has formed any part of medical literature relating to infancy or childhood. It is probable that cases always existed among infants or children where the peculiar dietetic vices necessary to its production existed, but it is also probable that the increased use of artificial baby-foods has been in some way related to the more frequent appearance of the disease in these latter years. It is altogether likely that many of us have met scorbutus in its incipiency among infants and have not recognized the nature of the trouble. The first case that came under my care I failed to diagnose properly, and it was only in the light of a case in which I could scarcely err that I went back to the first one able to classify it.

Case I.—J. L., female, age fourteen months. American parentage. The child had received intelligent care, and had lived under comfortable and hygienic conditions; it was bottle-fed, the food alternating between condensed milk and malted milk, upon which it did apparently well for its first year. When about a year old, the mother noticed it did not care to sit up as much as usual, and seemed to be in pain when lifted up or placed in a position where it would have to continue sitting upright by its own effort. It avoided muscular exertion. At the time of my first visit, the child looked worn and sick. It cried frequently as if in pain. There seemed to be quite general tenderness to touch, even the gentlest manipulations causing it to cry out. The thighs were tender, as was the dorsal region of the spine. The gums were slightly ecchymotic and swollen, and there were purpuric patches in the upper lid of the left eye. There was some looseness of the bowels, abdominal distention, and a temperature of 102°. The stomach was not in good condition. As at that time summer diarrhea was more or less prevalent, the case was thought to be of that nature, and treatment was ordered accordingly. The significance of the swollen, ecchymotic gums and the purpuric spots in the eyelid was wholly misunderstood. It was thought the child had received a bump over its eye, and, of course, it was cutting teeth. The latter poor old scapegoat was made to do double duty.

As the child was apparently not doing well on the prepared food, the latter was ordered discontinued, and a diet of which fresh sterilized milk with sweet cream and lime-water were the main ingredients was substituted. In this I builded better than I knew. The child improved rapidly, and at the end of a month most of the scorbutic symptoms had disappeared. When the bowels had become normal in their action, the mother was instructed to give the child some soft egg, milk toast, and a small amount of potato.

Before this case had fully recovered, Case II came to my notice, and with its completer picture and consequent better diagnosis I was enabled during the later days of my treatment of Case I to suggest more efficient dietetic measures. The child is now completely well.

Case II.—B. C., female, aged nine months. Bottle-fed from birth. For the first three months it was given condensed milk in the proportion of fourteen parts of water to one of condensed milk. At the end of this period it was given Mellin's Food in addition. It had never been given anything at the table or in addition to the two articles mentioned. At eight and a half months, or about two weeks before it was brought to me, it was given about a pint of fresh milk every twenty-four hours along with Mellin's Food. It began to be tender in the lower limbs at about five months. The lower incisors were cut at five months, and the upper at eight. At about the seventh month the gums were seen to be swollen and ecchymotic. For some time previous to this visit—June 27, 1895—it had not cared to sit up. The mother said "its back seemed sore." There had been almost habitual constipation. About four weeks before the child was brought to me, both eyes began to protrude from their sockets, and the soft tissues round about them seemed deeply and copiously infiltrated with blood. The left eye still showed marked proptosis, with much the appearance in the eyelids of one who had received a severe blow upon the eye. It was the ordinary "black eye," with exophthalmos.

There was great general tenderness of the body, with very little voluntary movement of the lower limbs. The baby was pale, fretful, and very restless. It did not like to be disturbed, and screamed whenever I came near. There was no apparent enlargement of the epiphyses, but the thighs seemed very tender.

A diagnosis of scurvy was made, and the parents were given to understand that the treatment must be almost wholly dietetic. The child was ordered to be placed on fresh milk, raw-beef juice, fruit juice, and potato. The parents objected very strongly to this radical change, at first, but were made to see its necessity.

On July 6, nine days after the treatment was begun, I saw the child again. The proptosis was disappearing; the face had a better look; there was freer movement of the limbs, less general soreness, and the ecchymosis about the eye was fading. The case then passed out of sight for over three months, during which time the child passed successfully through an attack of measles and one of summer diarrhea. The father told me only a few days ago that the child was well.

These two cases may be taken as fairly typical of scurvy as it presents itself in babies. They do not show all the symptoms in all cases, but with the picture of those here presented fairly fixed there can be but little trouble in arriving at a proper diagnosis. Let us summarize briefly the common symptoms of the disease as we find them in the class of cases under consideration: The baby has a worn and fretful look, a bloodless and often muddy skin; its eyes may be bulging, with ecchymotic patches in the upper lids, or there may be ecchymosis without the prominent eye; the child is peevish and often screams at your approach; the breath is foul; the gums are swollen, tender, and often ecchymotic — they extend down over the teeth, and bleed easily when touched; the tongue is covered with a dirty yellowish-brown coat; there is general muscular tenderness; the spine is often painful or sensitive to touch; the child is disinclined to sit up without support, and moves as if in pain; the thighs are swollen, very tender, and often have a shining appearance; there is often thickening of the lower end of the femur; sensation is acute, but muscular power is weak; there may be immobility of the lower limbs amounting almost to paralysis; there is a tendency toward easy fracture of the femur, the break occurring near the epiphysis. There is sometimes general purpura; indeed, these purpuric spots may be your first intimation of the constitutional vice lying back of them.

The pathology of scurvy, whether in infant or adult, is obscure. In the baby one lesion has been found with marked uniformity where post-mortem examinations could be had. I refer to the extravasation of blood between the bone and periosteum. Wide areas of bone are often thus stripped and left with small nutritive supplies. This accounts for the tender and swollen thighs. The swollen and bleeding gums and the exophthalmos are also due to extravasations of blood. An examination of the blood of those suffering with scurvy has shown a notable lessening of red corpuscles and of coloring matter, in some instances amounting to over half the normal.

In the baby the cause of scurvy is probably always dietetic. Just how the condition is brought about would be hard, and perhaps impossible, to say. The change is probably at bottom a chemical one. In the absence of fresh foods containing certain salts and acids, there seems to be a weakening of tissue metabolism. It is chemico-physiological — the absence of the chemicals contained in fresh vegetable food or its derivatives determining the phenomena of scurvy, or their presence producing health.

The question of prevention is more than one of fresh foods; it is one of fresh foods given in such form as to insure as little chemical change from a certain (not yet well defined) standard as possible. For instance, it has been found that scurvy may follow the use of fresh sterilized milk. Either with the application of heat has come about some new chemical combinations, or there may have been a destruction of germs necessary to chemical changes demanded by the baby organism in its food. Happy the child that can draw its nourishment from the healthy breast of a healthy mother! But cases are of daily occurrence where this cannot be done, and it is in this class of cases the physician finds an opportunity for the display of all his skill and knowledge.

There has been a too ready disposition to recommend some of the many prepared baby-foods on the market, or to prescribe condensed milk. So commonly is this done that many parents put their bottle-fed babies on these articles without consulting the physician at all. These methods are not creditable to the physician, and, in the light of our recent knowledge, are most culpable. There

may be instances—and these are especially liable to occur in our large cities—where fresh, wholesome milk is not to be had, where it becomes necessary to prescribe some one of the prepared foods. When this is done, however, the parents should always be instructed to give the child daily fruit juice, fresh-meat juice, or a small amount of some fresh vegetable broth. With these precautions, I have no doubt prepared foods may be safely and often advantageously given. I have for several years been in the habit of directing that all bottle-fed babies that came under my care should be fed on a diet made up fresh daily of sweet cream, fresh milk, sugar of milk, water, and lime-water, in proportions varying to meet the demands of age, size, and strength. This course has proven far more satisfactory to me than the old method of prescribing prepared foods, and seems to be based on the soundest of reasons. It seems to me the matter of prepared foods for babies is only the question of proprietary medicine in another form. You cannot make a combination of drugs good for all cases, and you cannot prepare a baby-food good for all babies.

The treatment of scurvy in babies has already been quite fully outlined. It is evident that, the cause being improper diet, the treatment should be dietetic. Drugs play an unimportant rôle. Bitter tonics, acids, and iron may be used, but nothing can take the place of fresh fruits, vegetables, and meats. The form in which these shall be given must be determined by the conditions of the individual case.

Remember that scurvy in bottle-fed babies is probably more common than we suspect. Its pathognomonic signs are swollen and bleeding gums, swollen and tender thighs, purpuric spots—these three, no two of which are absent in any case.

159 JEFFERSON ST., MUSKEGON, MICH.

SALICYLIC ACID IN DERMATOLOGY.

BY J. ABBOTT CANTRELL, M.D.,

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The value of certain drugs in the treatment of diseases of the skin depends upon our thorough knowledge of their effect; and to gain this knowledge, it necessarily takes not alone days or weeks, but actually years of persistent work. We should know whether a remedy is astringent or stimulating, whether it is soothing or curative, and whether it is likely to cause any further disturbance if applied too long. In an experience of about ten years the use of salicylic acid has proven very serviceable in carefully selected cases at my Polyclinic service. After some experience had told us in what diseases we might see good results, we placed dependence upon this knowledge, and only in a few instances were we disappointed. In advising this remedy we choose one of the following methods of application: ointments of two to fifteen per cent., with either petrolatum, lanolin, or zinc oxide, according to the amount of inflammation or infiltration and thickening; washes in strengths varying from two to twenty per cent., either with water or in an emulsion with a slight quantity of mucilage of acacia; plasters ranging from ten to twenty-five per cent. in cases in which neither of the above was indicated, according to the locality or other circumstance. The addition of a small quantity of some antipruritic was deemed advisable in a few cases.

Eczema.—Salicylic acid gave excellent results in erythematous eczema when the disease was confined to a single or small area, and especially in cases which were rather subacute; but where the eruption was more or less general or the amount of inflammation high, it was deemed inadvisable to use it. In the papular manifestations the drug was advised only in cases where there had been a coalescence of the lesions, such as is often met with upon the legs, and in these cases only when the condition was more or less chronic. If the inflammation was an acute one, or the lesions rather scattered in irregular patches, the treatment did not have the same good effect. In cases presenting vesicles as the main symptom, the drug gave excellent results when used in somewhat weakened ointments; the same effect followed its use in cases of the pustular variety. Salicylic acid gave much better results in "eczema rubrum" and the squamous varieties or where there had been considerable fissuring. Moist conditions were much benefited by weak ointments, but the results were more noticeable in cases of long standing where there had been much infiltration and thickening. I can recall many cases, such as those occurring upon the dorsal surfaces of the hands and in the flexures of the joints, where the drug acted admirably.

Fissures were reduced to the level of the surrounding healthy portions.

Pityriasis Capitis; Ichthyosis; Psoriasis; Dermatitis Exfolitiva; Pityriasis Rubra.—Desquamative eruptions yielded to the use of salicylic acid with rapidity in some instances. Pityriasis capitis in which desquamation was the marked symptom responded excellently under the use of solution in water. Ichthyosis of the mild varieties was benefited by ointments, and the affected persons gained decided relief. In psoriasis it is possible that the best effects were seen, but only as far as the removal of the scales was concerned, as the entire curative results depended upon the internal administration of suitable remedies. Dermatitis exfolitiva as a distinct disease or where it followed upon a psoriasis was alike much benefited by the use of salicylic acid, also in ointment form. Pityriasis rubra improved under mild ointments.

Tinea Tricophytina.—Salicylic acid possesses mild parasitic properties and was found very serviceable in cases which were of short duration. Ringworm of the general non-hairy parts (*tinea circinata*) was cured with mild ointment, but in the hairy regions both in the beard (*tinea sycosis*) and upon the scalp (*tinea tonsurans*) it did not respond so quickly to the use of the drug.

Favus.—The achorion fungus yielded to about the same extent as to other remedies, but if any good did result from the use of salicylic acid it was only from the stronger ointments.

Chloasma; Lentigo.—Pigmentary affections did not respond as quickly as to other remedies. Chloasma yielded only to a slight extent, but lentigo was cured in the majority of instances when treated with stronger applications.

Hyperidrosis; Dysidrosis.—Affections of the sweat-glands, both where there had been a superfluous secretion as well as where this secretion had been pent up by the occlusion of the follicular openings and the formation of vesicles at these orifices, were alike benefited greatly by the application of either an ointment or a solution of salicylic acid. It acted as a stimulant to the glandular structures, gave a proper secretion, and prevented the formation of lesions at the follicular openings, as well as removing the summit from the vesicular lesions that had formed and allowing the blocked follicles to be emptied of their contents.

Acne; Seborrhea.—Inflammatory conditions of the sebaceous glands improved under the application of salicylic acid, both in ointment and solution; acne of the papular variety was benefited greatly, and especially where induration was a marked symptom, while the pustular lesions were removed after its judicious use. Seborrhea occurring either on the scalp, chest, or around the nasal orifices, was impressed curatively by the use of an ointment.

Folliculitis; Peri-folliculitis.—Inflammatory changes in the follicles or around these structures received much benefit during treatment by means of this drug, and it could be seen that the inflammation was very much lessened while the secretions of the glands were improved both in quality and quantity.

Clavus; Warts.—Corns were softened and prepared for the action of the curette or could be removed by the finger alone. Warts also shared this softening process, and after removal by the curette were prevented from return.

Epitheliomata.—Epitheliomatous conditions, after the removal of the crusts, were removed by the action of salicylic acid in the stronger ointments, but where these new-growths had progressed for some time the drug did not give the same impression.

Impetigo Contagiosa; Ivy Poisoning.—Of the milder parasitic affections, such as impetigo contagiosa, the remedy gave a favorable impression in their treatment. Ivy poisoning was greatly and quickly relieved, while the eczema which is constantly seen after this condition was entirely removed.

Ulcers.—Both the syphilitic and non-syphilitic ulcerations were cured by the action of this drug, and in a short time it could be seen that the bases of the ulcers were healing admirably. It should be understood that during the treatment of the syphilitic ulcers internal and other proper measures were alike adopted.

Miscellaneous Affections.—A number of miscellaneous affections were treated by the salicylic acid, and in all the result was remarkably good—such as, for instance, lupus erythematosus of the face, miliaria or lichen tropicus occurring upon the trunk, molluscum contagiosum after the removal of the summits of the little grayish-white bodies; urticaria was relieved of a great amount of itching, but internal and other treatment was adopted at the same time. Nail deformities, especially of the hypertrophic varieties, were improved, and particularly where the condition was caused by an eczematous process.

The Therapeutic Gazette

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Leading Articles.

THE USE OF DIGITALIS IN CHILDREN.

We have from time to time, in the THERAPEUTIC GAZETTE, called attention to the fact that while digitalis was a cardiac stimulant of inestimable value in many cases in which there was failure of compensation in valvular disease of the heart affecting adults, it frequently not only failed to do good, but actually seemed to do harm, when administered to children suffering from similar lesions. It is a well known fact that there are a few cases of cardiac disease in adults in which digitalis also fails to do good. It is not infrequently found in cases of mitral regurgitation that the digitalis seems to cause an increase in the quantity of blood which regurgitates into the left auricle, and so causes distention of this cavity, with consequent pulmonary engorgement and distention of the right side of the heart. In children it would seem probable that this untoward effect of digitalis in mitral regurgitation occurs much more frequently than in adults. Again, those who have had the most experience in administering this drug to children under puberty will remember that it is much more apt to cause an irregular action of the heart, both as to the force of the individual beat and the rhythm, than it is in adults. And it does not seem to cause the full pulse and the improvement in circulation which we are wont to expect from its use, and very frequently some gastric disturbance is caused by it which renders its further administration ill-advised even if the circulatory symptoms have not already prevented its further use.

Our attention has been recently recalled to this matter by a brief article by Dr. Koplik in the *New York Medical Journal* of February 8, 1896, under the title, "Digitalis Poisoning in Children." Dr. Koplik records two cases in which after the administration of quite full doses of digitalis—which, however, can hardly be called poisonous,—some of the symptoms which we have enumerated speedily developed. In one case, for example, the pulse, which was at first 118, dropped to 64 without a corresponding decrease in the rapidity of the respiration, and with a slight fall in temperature. In the other instance it was noted that the heart-sounds were most tumultuous; the dose in this case was two drops of the fluid extract administered every three hours. The point is noted by Dr. Koplik that the over-action of the drug persisted for a number of days after the digitalis was withdrawn, a fact connected with the action of digitalis which is well recognized by all therapeutists—it is slow in acting, but maintains its influence for a long time. In regard to the treatment of these untoward symptoms of overdoses of digitalis, which are so apt to occur in children when full doses are given, as a matter of fact little can be done. In Koplik's cases strychnine was administered in one instance, but the most efficient remedy in his hands proved to be rectal injections of black coffee, and absolute rest in bed, medication by the mouth being impossible because of vomiting.

We believe that digitalis, if employed at all in diseases of children, should be given in very minute dose, and we have found that tincture of strophanthus produces effects in this class of patients which are similar to those caused by digitalis in adults. In other words, if the patient is under puberty, strophanthus is the first choice in the way of a drug for the condition of failure of compensation due to valvular disease of the heart, but if the patient is above puberty digitalis is of course the more reliable remedy.

THE TREATMENT OF STRYCHNINE POISONING AND TETANUS.

Whatever may be the etiological conditions which produce tetanic convulsions in man, the therapeutic indications in the treatment of cases manifesting such symptoms are clear and identical; for in all instances of poisoning derived from either nux vomica or the tetanus bacillus, there is produced a condition of hyperexcitation of the motor tracts of the spinal cord. For many years the profession have treated these conditions by the administration of drugs which were known to possess a more or less sedative influence upon those portions of the nervous system which were supposed to be affected, and while in many instances ignorance of the true physiological action of some of these drugs caused them to be employed in a wrong manner, the fact remains that, aside from the yet unproved application of tetanus antitoxin in the treatment of tetanus, our best reliance must still be placed on the administration of two drugs which physiological research has proved to directly antagonize the poison—namely, chloral and bromide of potassium or sodium. The first of these depresses the motor tract of the spinal cord, and the second the sensory tract, thereby quieting reflex activity and allaying irritation. As a matter of practical experience, however, it is also well known that in many cases of tetanus and strychnine poisoning the patient is unable to take chloral or bromide of potassium, either because of the difficulty in swallowing or because an attempt to administer these drugs results in a violent convulsion. Under these circumstances it is the duty of the physician to relax his patient by a few whiffs of nitrite of amyl, followed by chloroform, and then to administer full doses of the chloral and bromide by the rectum in a warm solution, so that they will be rapidly absorbed, keeping the patient in a condition of relaxation by the administration of the chloroform. Experimental and clinical studies daily prove that this is the most satisfactory method of treatment, particularly in strychnine poisoning, and the experiments of Wood and others have proved that the effects of chloral and strychnine are to be considered as physiologically antagonistic.

Our attention has recently been called to this matter by a report in the *Medical Press and Circular* by Mr. Lloyd, in which chloroform was administered by inhalation for as long a time as six hours in a case of strychnine poisoning which had been produced by too free hypodermic administration of the latter drug, the patient being supported in the meantime by nutrient enemata. The actual time during which the chloroform was administered was six hours and seven minutes within a period of nine hours and five minutes, and the amount of chloroform used was nine and a half ounces. The patient ultimately recovered, although suffering primarily from severe septicemia. Mr. Lloyd found that only partial anesthesia was needed to control the spasm. This is an interesting illustration of the application of our knowledge in regard to the physiological action of various remedies, and we would remind our readers that in cases of apparent collapse from chloroform full hypodermic injections of strychnine are of the greatest value.

THE HYPODERMIC USE OF GUAIACOL IN ACUTE PULMONARY TUBERCULOSIS.

Following Sömmerbrodt's well known recommendation of creosote in tuberculosis of the lungs, and the abundant literature on the subject which in due time appeared, came the claims of guaiacol, a creosote derivative, in the same pathological conditions. Still later, guaiacol was heralded as a drug which when applied to the skin would act as an active antipyretic; and recently we have heard a good deal about its value when given by hypodermic injection in the treatment of pulmonary tuberculosis.

As pointed out by Coghill in the *British Medical Journal* of March 7, 1896, Schetelig was the first to show that a vehicle was quite unnecessary for injecting pure guaiacol in these cases. Coghill tells us that on the very day on which he heard of Dr. Schetelig's method he had under his care a patient with a temperature of nearly 104°, which temperature none of the ordinary methods of treatment had been able to reduce. Three hypodermic doses, one of fifteen and two of ten minims, of pure guaiacol, at four-hour intervals, brought the temperature down to normal, with rapid amelioration of all the symptoms. He also tells us that he divides the fever of tuberculosis into two stages, namely: that which comes on soon after infection, and that which develops with the suppurative stage of the disease. It is in this suppurative stage that the injections of guaiacol

seemed to be of most value, and it is at this time that the physician is often at his wits' end as to what method of treatment to pursue. Under these circumstances Coghill endeavors to give cod-liver oil in capsule by the mouth, or some one of the bitter tonics such as calisaya, in addition to the hypodermic injections of guaiacol in such doses as have been named. He remarks that in some instances these injections of guaiacol have to be continued for some time before the fall of temperature is marked, but that when the temperature does fall it does so gradually, and that the other symptoms of the disease generally markedly improve, the cough and expectoration being decreased and the appetite and weight increased. He also asserts that a moderate perspiration usually follows the injection, and that this takes the place of night-sweats. In many instances, he tells us, only one or two minims of guaiacol are necessary for the injection, and that when we are afraid to repeat the injection we may apply the drug to the skin in the way in which it has been used as an antipyretic in typhoid fever. These injections produce a certain amount of pain, but this is so trifling as not to be a serious objection provided the needle is sharp and inserted deeply in the loose subcutaneous tissues, the buttock being the most favorable region for the injection. Coghill confesses that small areas of skin have occasionally sloughed when the injection was given too superficially.

Very soon after guaiacol is given hypodermically it is distinctly tasted by the patient, proving that it is rapidly absorbed. The great advantage claimed for the hypodermic method is that smaller doses can be given and greater effects obtained than when it is given by the mouth, and that there is no danger of disordering the digestive apparatus. Coghill even goes so far as to claim that guaiacol under these circumstances exercises an actual curative influence.

Finally, he concludes that the carbonate of guaiacol and benzoyl guaiacol, two compounds which have been recently introduced as substitutes for guaiacol, have not been found by him to possess any advantages over the original substance.

CONSERVATISM IN THE TREATMENT OF TRAUMA OF THE EXTREMITIES.

On a line with numerous papers and contributions which can be found in current literature is a communication by Réclus on the subject of amputation, or rather upon non-operative interference in the treatment of severe injuries of the extremities. This surgeon, a recognized leader—not only because of his valuable contributions to literature and his scientific attainments, but particularly from his wide practical experience,—contributes a paper to the *Revue de Chirurgie* which is almost revolutionary in its teaching.

Briefly, he holds that amputations for traumatism should be done away with. Instead of performing this operation, the crushed tissue is included in an antiseptic dressing until by natural processes the devitalized tissues are separated from those still living. His experience in this method of treatment is limited to seven cases. These, though few in number, were originally of such a hopeless character, and the results of treatment were so brilliant, that he feels justified in drawing conclusions from them.

The first case was one of extensive train crush of both feet; tarsal bones as well as the metatarsals and phalanges were involved —indeed, the feet seemed to be simply bags of blood and broken bones. The obvious indication was amputation of both legs above the ankle. The patient was profoundly shocked and exsanguinated. The parts were thoroughly cleansed and enclosed in an antiseptic dressing. The patient suffered from no fever. At the end of three weeks the first dressing was removed. Three toes of the left foot were found separated, leaving a healthy granulated wound. Of the right foot two toes were separated and two metatarsal bones were denuded. The latter were removed by slight traction. In two months cicatrization was complete. The patient recovered with perfectly useful feet.

The second case was also a railroad accident. The right leg was crushed and the knee-joint opened. The devitalized leg-tissue was removed with a snip of the scissors. The thigh was also crushed, the skin badly torn and discolored, and the tissues boggy. About six inches of the lower end of the femur was exposed. The patient was profoundly shocked. The only operation to be considered was hip-joint amputation. This in the patient's condition would have been certain death. Hence the thigh was thoroughly cleansed and enclosed in an antiseptic dressing. The next day reaction set in. On the tenth day the dressing became offensive and was removed. In four weeks all the gangrenous part had separated and the femur projected from granulating surfaces. The

periosteum was then raised for about four inches, dissected back, and the femur was sawed through. Gangrene had mainly attacked the inner side of the thigh, leaving a healthy outer portion, which was turned in, forming a flap.

Another patient had both legs crushed by a locomotive. The parts were thoroughly cleansed, and the crushed legs were enclosed in an antiseptic dressing. In six weeks the devitalized parts had entirely separated. The patient recovered perfectly.

These reported cases are typical of those which follow.

The author holds that he is quite sure that the admirable results which were attained would not have been possible had the ordinary treatment by amputation been followed, for it is true that antisepsis has no effect in diminishing shock. Réclus compares his results with the statistics of Oberst, who, in fifteen cases of disarticulation of the thigh or amputation of the femur, had five deaths, all due to shock. The principal advantage of this procedure is the avoidance of shock. It has, however, still another object. It enables the surgeon to save absolutely all the tissue which retains its vitality. Under ordinary circumstances, when amputation is performed immediately after injury, the general rule followed is to go through tissues which are certainly healthy. This always implies more or less sacrifice of tissues which could have retained their vitality.

Réclus clearly summarizes the objection to this method. He recognizes the fact that crushed tissues are always infected by germs from the skin, the clothing, or the earth, and form particularly favorable soil for the growth of such germs. Not only is the crushed limb perfectly useless, but if left in place it endangers life from profuse suppuration, from traumatic gangrene, from tetanus. An amputation wisely arranged practically does away with all these dangers. This reasoning, he holds, was absolutely incontrovertible before antisepsis attained its present position, but by the method which he puts in practice there is no fear of any such complications as have been mentioned.

Of all the cases he treated, there was no instance of diffuse suppuration, purulent infection, or septicemia. There was, however, one instance of tetanus which caused death. He holds, however, that this mortality would not have occurred had he been familiar with the resources of serum therapy. The fatal case was one of crush of the left arm. The hand and the lower third of the forearm were torn off, and the extremities of the radius and ulna projected from the wound. From the elbow-joint hung ecchymotic muscular flaps; the arm itself was torn and bruised as far as the axilla. The humerus was fractured in its middle third, and the muscles were crushed and crepitant on palpation. The only operation to be thought of would have been disarticulation of the shoulder. The patient was profoundly shocked and anemic, the temperature below 97°. The conservative treatment was adopted, the patient reacted, and the fracture of the humerus united beneath the plaster dressing. On the twenty-first day the gangrenous parts came away. Slight tetanic symptoms were manifested during the dressing, then developed into true tetanus, and caused death in three days.

Guided by this experience, Réclus subjected his last four cases to injections of tetanus antitoxin, f ʒ iiss being driven in subcutaneously in the beginning of treatment, and repeated in ten days.

As to the technique of the conservative treatment: The patient is put on the operating-table and enveloped in hot blankets, frequently renewed. Injections of artificial serum, of caffeine and of ether are given when there is profound shock. If sensibility is still thoroughly preserved, a few ether inhalations are given. The wound is thoroughly exposed; the parts are washed in soap and hot water; the skin is carefully shaved, then cleansed with a stiff brush with ether followed by alcohol and permanganate of potassium. The skin having been thus cleansed, the deeper parts are explored. The loose splinters of bone are removed, also shreds of muscle and unattached tendons. Under a forcible stream of water at a temperature of 140° F., all the irregularities and recesses of the wound are cleansed, the clots and foreign bodies being thus washed away. This irrigation is carried out with scrupulous care. The water is hot enough to be antiseptic, and moreover is decidedly hemostatic. Still another advantage, it powerfully combats shock. Following these injections, tampons of cotton soaked in permanganate of potassium are employed to dry the whole wound, especially in the regions where there has been contamination. This cleansing process having been completed, the poly-antiseptic dressing is applied. This consists of an ointment containing a number of active antiseptic substances—some absorbable, such as corrosive sublimate, carbolic acid, and

iodoform, in small quantities; others slightly absorbable, such as boric acid, salol, and antipyrin, in considerable quantities. This ointment is placed on gauze bandages, which are then packed into all the interstices of the wound. Over this is applied a thick layer of absorbent cotton and a moist gauze bandage. If discharge leaks through, fresh antiseptic dressings are applied. If the temperature does not rise and there are no disagreeable odors, this dressing is not removed for twenty-one days. At the end of this time, *i.e.* three weeks, dead parts will be separated, excepting perhaps some tough aponeuroses or tendons. The surgeon should wait until a perfectly healthy granulating surface is left. He then raises the periosteum with an elevator, saws the bone at the proper height, and approximates the granulating surfaces so that when cicatrization is complete there will be a useful stump.

It is apparent from the statements of Réclus that he would pursue this method as a routine practice, abandoning altogether immediate amputation in the primary period. Under certain circumstances this advice is excellent and is being followed by the majority of skilled surgeons. Thus it is now universally recognized by the specialists that frost-bites, scalds, and crushes of the hands and feet should be treated in general on the principle of allowing Nature to indicate a line of separation before proceeding to amputation. Thus are saved most useful parts. It is also accepted as a generally recognized principle that profound shock is a distinct contra-indication to immediate operation, and that hence it is wise in cases of severe shock to postpone intervention until the patient has reacted, in the meantime thoroughly cleansing the crushed tissues at the seat of future operation. There can, however, be no possible advantage in delaying the removal of devitalized parts beyond the time of complete reaction, save that thus may be preserved a certain amount of tissue which the surgeon would feel compelled to sacrifice. In amputations through the arm, forearm, thigh, or leg, the one, two or three inches which might be saved by conservative treatment by no means justify the risks which, in spite of Réclus's statements to the contrary, are inherent in leaving a sloughing and often infected mass of tissue in immediate contact with the absorbents of the system. Even the authority of Réclus cannot make popular a method which appeals so little to the common sense of the surgeon. In marked contrast to this teaching, and in full accord with the most advanced and enlightened sentiment of the day in regard to amputations, is the admirable paper of Estes (THERAPEUTIC GAZETTE, February, 1895), whose experience is infinitely wider and whose statistics compare most favorably with those of the distinguished French surgeon.

Reports on Therapeutic Progress

A DISCUSSION ON DOSES OF VARIOUS REMEDIES AT THE SEVERAL AGES.

BARTON opened a discussion on this subject at the recent meeting of the British Medical Association.

Sir Alfred Garrod, quoting Gaubius, fixes the ratio of ages to dosage as follows: for a child of one year, one-twelfth the adult dose; at fourteen years one-half, and at twenty years two-thirds, the adult dose; for intervening ages, proportionate gradation; under one year, the dose for one year to be divided by 12 for each month. The adult boundary line is twenty-five years.

Children sometimes rapidly pass from a slight state of illness into perhaps a most alarming condition, yet they very often quickly recover. Hence in administering drugs of any potency it is a good rule to give the medicine in frequent small doses, diminishing the dose as the symptoms improve, and leaving off the medicine directly the symptom has yielded. In this way harm is avoided.

A medicine of any marked power seems to do little harm while its potency is being used upon a definite symptom; morphine in affections of the peritoneum is a good example of this. The writer has seen children in acute peritonitis bear adult doses without harm if watched in the manner mentioned. A diagnosis of the probable cause of the peritonitis should, if possible, be first made before giving such large doses.

That the drugs administered to children should be of excellent quality goes without saying, and if patients cannot afford to go to first-class chemists, rather than use inferior drugs the medical man had better depend on treating his patient by bed, milk, broth, and water, which will carry children safely through most diseases.

The ordinary dose of liquor ammonii acetatis is too large. In large doses it causes sickness and considerable depression (cardiac and nervous). This action makes

it valuable in the treatment of pyrexia. By giving drugs at frequent intervals in small doses one gets much better results than by large doses at long intervals. The adult dose of this drug is two to six drachms; one-half to one drachm for children is given as an ordinary dose. By preference give one drachm to a child of twelve; five minims for one year, and so on up to twelve years. This dose may be given each hour for six doses, then each two or three hours according to the febrile symptoms.

Ammonii carbonas, although valuable, is not tolerated well by children, causing sickness easily. Dose, three to ten grains; for children of one year, one-quarter grain; for children of twelve years, two grains. This drug is more useful during recovery from pneumonia or bronchitic affection than in any other condition in children.

Of ammonii bromidum the dose is two to twenty grains. This drug is much more useful than bromide of potassium, as being less depressing. Children bear it in big doses if epileptic from reflex causes. A child one year old can tolerate five grains easily, say each four hours, but none of the bromides are good to persist with, owing to nervous depression and tendency to bromide rash which they produce.

Anethi aqua is very valuable in flatulence in infants. It is best given before breast-feeding or with the child's bottle, but the usual doses are taken well. One to two drachms is the dose given for infants; half of this, and diluted, is a better dose.

Antipyrin is only to be mentioned to be condemned. By reducing temperature quickly, as it undoubtedly can, it more often than not complicates diagnosis. When clinical thermometry first came in, we were encouraged to study the natural rises and falls of temperature in all the specific diseases. Seeing that in cold sponging or ice baths we have the only reliable remedy for hyperpyrexia, it is far safer to use the older diaphoretics while watching the early stages of febrile attacks, so as not to mask the well known early characteristic temperatures. The modern craze for the reduction of temperature, utterly ignoring every other point, has flooded the market with a series of dangerous antipyretics.

Liquor sodii arsenatis is perhaps the most useful and safe form in which to administer arsenic to children, chiefly because the affections requiring its use are generally the accompaniment of the acid diathesis, and hence it may be combined and taken with alkalies. Five to ten minims being the dose for adults, one might be disposed to order more than would be borne well; a child of twelve years will bear three minims in water three times a day very well; a child one year old bears one minim very well.

As belladonna so often fails in its repute for curing enuresis or pertussis, and as its full doses are so extremely unpleasant, it is wise not to employ it, excepting in small doses frequently repeated. The extract is apparently more potent than the tincture. The dry throat and the restless nights (semi-delirium) are the chief distressing symptoms.

Glycerinum boracis is a most valuable preparation. Sucked or painted freely in the mouth, it quickly cleanses that organ of all aphthous affections, and in young children is the safest and simplest, if not most efficacious, remedy in diphtheria. The dangers of ramming brushes down struggling infants' throats is great; detached membranes are likely to be pushed into the larynx or swallowed into the stomach or pushed up behind the palate, only to sow fresh areas of disease; whereas, if ten to sixty drops, according to age, are sucked every hour or two, a throat may be nearly or quite clear in twenty-four hours. If it is used in this way in surgical cases, the raw surfaces of tonsils never become white or semi-diphtheritic looking, as they are wont to do when on milk diet after throat operations. It produces no bad signs internally, and, as it is chiefly eliminated by the kidneys, further good may be done if the urinary secretions themselves are contaminated. A child of ten years can take one drachm of glycerinum boracis six or eight times in twenty-four hours without harm; a child of six months can take ten minims every two hours for several days without any harm.

Bismuth carbonas, most valuable in the diarrhea of infants from all causes, requires to be given in large doses, either with or without opium, as may seem necessary; also, being palatable, it is easily administered. The dose for an adult is five to twenty grains; infants of six months will take five grains quite easily every three or four hours, with no harmful effect.

Of calomel the adult dose is one-half grain to five grains, excluding consideration of syphilis. Other preparations of mercury are more useful where there is indication for a thorough clearing out of the intestinal tract. When there is a thick-coated or furred

tongue, nothing can equal calomel. For children under one year, one grain; two years, two grains; under seven, three grains; followed in four hours by a mild saline—magnesia citrate may be suggested as suitable. The idea that calomel causes injury to the teeth can be absolutely contradicted, and yet it is constantly quoted as a cause of deterioration which can really be traced to bad feeding or to the bad health that called perhaps for the use of calomel. The occasional extreme faintness that is noticed after the administration of calomel may be due to some impurity in the drug. In commencing laryngeal catarrh with the harsh croupy cough, if given in large doses it cuts short the attack as nothing else can. The frequent administration of smaller doses of calomel for the liver or to bring color to the stools is useless and probably harmful.

Chloral hydras: adult dose, five to thirty grains; for one year, five-twelfths of a grain to three grains is suggested. Its chief use in infants is for convulsions, which if due to any reflex cause can be controlled and stopped by steady administration of fairly large doses. Two grains every two hours for six doses were given to an infant eight weeks old without any ill-effect. In asthma this drug is always very useful. Asthma being rare under one year, but not rare between one and twelve years, doses of two to five grains should be repeated each hour during the asthmatic fit, which is generally worse at night.

Chloroformum, for surgical operations on very young children (under seven), is certainly the most comfortable anesthetic for the operator. Infants in arms do not seem to suffer so readily from chloroform sickness. There is less hemorrhage, as a rule, than with ether-administration. In children under three, who have any signs of rickets, chloroform is apt to bring on very unpleasant respiratory difficulties. Children with asthma do not bear chloroform well (differing in this respect from adults). The American plan of administering chloroform for convulsions is not so simple as the administration of large doses of chloral internally.

Camphoræ aqua is very objectionable to children on account of its taste; it is best administered diluted when there is any special reason for its being given.

Ferrum reductum: adult dose, one to five grains; for children, one-twelfth to one-half grain. However, infants under one year can easily take two grains three times a day. If there is any constipation, one-half to two grains of powdered liquorice root can be added to the iron powder with advantage, and sugar of milk may be added as a vehicle. In true anemic states this preparation reddens the blood sooner than any other. It is extremely useful in the anemias of hand-fed and rachitic children. It is less likely to disagree than any other form of iron, and has less ill-effects. The teeth may be blackened but not in any way spoiled, as they may be when tincture ferri perchloridi in acid solution is given.

Ferri iodidi syrupus is a most unpalatable mixture for children, and also more often than not seems to disagree with the function of liver and stomach; it is better tolerated in very small doses. For children who can swallow pills, pilulæ ferri iodidi are much more easy of administration.

In gastric and intestinal irritation, when the alterative action of mercury is desired, hydrargyrum cum creta is most valuable. Small doses, repeated at intervals till the stools are altered, is perhaps the most effective way of giving this drug. For children under two years, one-sixth of a grain every four hours until one grain has been taken, is a suitable dose. Children bear the drug well, and it is not likely to be followed by the faint condition that is sometimes induced after calomel. Between two and twelve years, three to five grains may be given as a single dose when required.

Vinum ipecacuanhæ is very apt after a few doses to produce nausea, even in doses of five minims. On the other hand, one drachm very often fails to produce vomiting. The adult dose is five to forty minims; as an expectorant, three to six drachms; hence for a child of one year, half a drachm should be drastic. If larger doses are given, there is much prostration and some traces of irritation of the intestines. Dose for infants under one year, one to three minims; one to twelve years, two to ten minims, or one-half a minim a year. For emesis, one-half to thirteen minims for children under one year, followed by frequent teaspoonfuls of warm water, and then tickling the throat, gives the best results. Especially indicated night and morning for loaded bronchial tubes.

Trochisci ipecacuanhæ et morphinæ are extremely useful in spasmodic irritable cough after acute stages have passed off, especially if the cough is not accompanied by much phlegm. Children under two rarely require opiates for cough. For a child from two to

twelve years old, with irritable cough, worse at night and preventing sleep, one-eighth to one-quarter of a lozenge every fifteen minutes will, after two or three doses, give much relief, and the small dose produces but little ill-effect upon digestion.

Excepting in peritoneal or enteric affections it is important to be very careful in the administration of opium or its compounds. The congestion of the pulmonary circulation, as well as that of the cerebrum, are, with constipation, its chief baneful effects. In peritonitis or troubles outside the bowel, but requiring quiet of the neighboring parts, hypodermic injections of morphine are undoubtedly most satisfactory, and the doses must be given at regular intervals to prevent the morphine sickness. In tuberculous peritonitis a child of eight will bear one-fourth of a grain of morphine every three or four hours, and, although delaying the action of bowels, it does not cause the hard lumps of feces that collect when opium is administered by the mouth.

Extractum opii liquidum is the best preparation for internal administration. Combined with bismuth it is the most reliable means of controlling violent diarrhea in children. The old dictum, one drop for each year, is a very fair division for all conditions which require decided dosage of opium, and one-twelfth of a drop for each month under one year. For controlling cough the most minute doses are sufficient, even paregoric being effective. If excretions in the bowel or lung which ought to be expelled by evacuation or expectoration are retained by the holding effect of opium, then serious harm is done. A minute dose of morphine more quickly controls the sickness of morphine than anything else. Tea, coffee, caffeine, or an effervescing saline best relieves the sickness of opium itself.

In all throat and mouth affections, potassii chloras, with potassii citras, given each hour for numerous doses, gives quick relief. The effect is depressing on the heart, chiefly in slowing the heart's action, together with some tension of arteries. A child of one year can take one grain per hour for twelve hours and then every two or three hours. A severe tonsillitis will be nearly gone in forty-eight hours with this treatment. The potassii citras is given in double the dose of potassium chlorate. If the drug is required for a longer time, liquor strychninæ can be added with good effect.

The uses of potassii bromidum are the same as those of ammonii bromidum; if continued long it increases hysteria.

Sennæ confectio is the most certain of laxatives for continued constipation, only it must be given regularly, the actual dose being gauged by test. Twenty grains to one drachm will be suitable for one year to five years.

Sennæ syrupus is extremely uncertain; many children take the adult dose without effect.

Sulphuris confectio is most unreliable in its effect.

Sulphur precipitatum vel sublimatum is the best form for administering sulphur. A child of one year requires five grains; of six months, three grains; twelve years, thirty grains. It is most useful in boils, lichen, or urticaria; in fact, in nearly all skin affections of childhood.

Sodii phosphas is practically useless, its effect is so uncertain.

Sinapis cataplasma, although so useful, is very difficult to apply to children. By diluting with a full equal part of wheat flour, the intensity of rubefacient action is diminished and made bearable.—*British Medical Journal*, Sept. 21, 1895.

WHAT IS THE DOSE OF SULPHONAL?

An inquest was recently held in Kilburn which in several respects was remarkable. But perhaps the most noteworthy feature in the whole case was the number of medical men concerned in it. The wife of a medical practitioner became seriously ill from emphysema and cardiac failure. A medical friend was accordingly summoned to attend her, and for her sleeplessness prescribed two powders of twenty-five grains each of sulphonal. Two days afterwards death occurred, and the two medical men in attendance—namely, the husband of the deceased, and his friend—drew up a report of the facts of the case and submitted them to a third medical man, requesting him to decide what the precise form of the death certificate should be. The latter gave his decision that death "from anemia and influenza" ought to be certified. This was accordingly done. But meanwhile the medical friend who had attended the case began to have some suspicions that the patient had died of some narcotic poison, and upon the strength of this conviction he communicated with the coroner, also a medical man. So an inquest was ordered and a post-mortem examination made. The result of the latter was definite enough: much organic disease was shown to be present in the various organs, and, in view of the suspicions aroused,

the contents of the stomach were saved—of which, however, it may here be remarked that nothing more has been heard. The evidence at the inquest was entirely confined to medical witnesses, and the *point de resistance* thereat was the question of the proper dose of sulphonal under the circumstances of the case. The husband admitted that he considered the doses, twenty-five grains, large ones. The report before us does not state any details as to their administration. The opinion, moreover, of the medical man who made the post-mortem was apparently to the effect that these doses were sufficient to cause death, whereupon the jury returned a verdict of death from failure of the heart's action, and requested the coroner to censure the attending practitioner. The medical coroner immediately acted upon the instructions of the jury and "severely censured" his *confrère* for prescribing so large a dose of sulphonal without first making a proper examination. Clearly, so far as the latter practitioner is concerned, it would have been better for himself if he had said nothing about having an inquiry. Moreover, as the inquiry has been closed without anything having been heard of the contents of the stomach, which were saved and forwarded to the police with a view to an analysis being made, it is conceivable that the object for which the inquest was ordered was not attained. Lastly, we cannot agree with the remark of the coroner that the doses of sulphonal were "large." The limits of the doses of this drug are fifteen to forty grains, but perhaps the coroner, as a medical man, meant that before any sulphonal was administered the attending practitioner should have made a close and careful examination of the patient's condition, which, according to the evidence, does not appear to have been done.—*Medical Press and Circular*, Jan. 8, 1896.

ON THE PHARMACOLOGY OF ETHYL BROMIDE.

Hennicke, working under Dreser's direction, found that after white rats had been allowed to inhale air containing 2.3 per cent. of ethyl bromide for twenty-two to thirty minutes, death occurred during the night, although apparently normal recovery had followed the inhalation. Furthermore, a case of ethyl-bromide intoxication had been described by Jendritza. A domestic (eighteen years of age) was anesthetized by this substance for tooth-extraction. After the operation recovery quickly followed; neither the dentist nor (after her return) her employers noticed anything amiss; but later in the day she was found unconscious, with fixed moderately dilated pupils and locked jaws; sensibility was absent, but respiration was easy and the pulse full and regular. Ice was applied to the head, and attempts were made to rouse her, which succeeded after an hour and a half. Speech was not recovered until half an hour later.

Dreser, thinking that these ill-effects were probably due to retention of ethyl bromide in the body, perhaps in connection with the nerve cells, and the formation of decomposition products as a result of the normal metabolic changes occurring in the cells, instituted a series of experiments to determine if possible if this were the case. The most feasible explanation was a saponification of the ethyl bromide by the alkaline tissue-juices. He therefore submitted a 0.25-per-cent. solution of sodium carbonate saturated with ethyl bromide to a temperature of 36° C. for six hours. On examining the product he found a trace of bromide present in an inorganic form. He then submitted a number of rabbits to ethyl-bromide inhalations and examined the urine; in all cases, with one exception, he found a definite quantity of combined bromide present. One of the animals, which was emaciated, died one hour after the commencement of the experiment, and the time therefore was, in all probability, too short for any excretion of bromine to occur. In man also he constantly found bromine in the urine after anesthetizing with ethyl bromide. He therefore regards it as proved that the injurious effects of ethyl-bromide inhalations are due to retention of the compound in the body; this undergoes decomposition, resulting in the formation of compounds having a more toxic effect than the ethyl bromide itself.—*Medical Chronicle*, January, 1896.

ULCERS OF THE CORNEA.

Wood White, in the *Birmingham Medical Review* for January, 1896, in an exhaustive article on this subject, tells us that if these ulcers are seen in an early stage the treatment is satisfactory, as a stop can generally be put to their progress. If traumatic in origin, of course foreign bodies must be carefully looked for. The eyelashes must also be examined, as a displaced eyelash is sometimes to be found. If the ulcer is due to a conjunctival inflammation, the treatment

of this condition must not be discontinued. It will be better, however, for the surgeon himself to apply any strong astringent, such as nitrate of silver, to the eye, care being taken that the cornea is not cauterized, the use of strong astringent lotions and drops by the patient being forbidden. The author often notices that there seems to be a difference of opinion as to the advisability of applying a bandage. It is quite evident that the constant movement of the eyelids over an inflamed surface must be injurious; moreover, while the lids are open the ulcer is exposed to irritation from dust, smoke, and all the numerous particles that are present in the air; it therefore seems natural that the eye should be protected by a bandage, and he thinks this treatment should be generally adopted, excepting in cases where there is a considerable conjunctival discharge and irritation—here the application of a bandage causes the pus to be pent up within the lids, and would tend to aggravate the condition. In those sloughing ulcers which result from inflammation of the tear-passages a bandage is also injurious, and a shade or pair of protective glasses will be more suitable, combined with constant cleansing with warm antiseptic lotions. In young children a bandage must be generally dispensed with, as it is impossible to keep it properly applied, and unless it is properly applied it does more harm than good. When an ulcer tends to perforate, or has perforated, a pressure bandage is often called for, which not only keeps the lids immovable, but affords support to the weakened cornea.

Mydriatics are of great assistance to us in the treatment of ulcers. They contract the iris and ciliary vessels, dilate the pupil, and in this way reduce the vascular tension and irritation so constantly present; this acts favorably on the ulcer itself. Atropine, in combination with cocaine or not, is the most convenient. The sulphate in the form of drops (one to five grains to the ounce) may be ordered, or the alkaloids may be given dissolved in either vaselin or castor oil. When the pain is very excessive, the ulcer superficial, and there is not much evidence of deep congestion, he thinks the latter form of medication is to be preferred. In some individual instances, however, atropine gives rise to conjunctival irritation and eczema of the lids, when duboisine, daturine, belladonna, or the hydrochlorate of scopolamine will generally be tolerated. The latter, which is comparatively a new drug, he has found most satisfactory. When an ulcer is progressing and the surrounding corneal tissue is much infiltrated, more active treatment is necessary.

Of late years the galvano-cautery has been universally used with splendid results. It is not necessary to cauterize the whole ulcer, but care must be taken that the margin along which the ulcer is advancing is thoroughly destroyed. After the operation there is remarkably little reaction, and, as a rule, the inflammation soon takes a favorable turn. After the cauterization he fills the cavity of the ulcer with finely powdered iodoform or iodol, and, where pain and vascular tension is excessive, warm moist pads frequently changed will often give relief and hasten the healing process. Instead of cauterization, scraping of the ulcer is sometimes resorted to.

When these modes of treatment fail, daily applications of carbolic acid, formalin, or a saturated solution of perchloride of mercury, to the floor of the ulcer, are sometimes attended with success; and cases have been reported where the frequent dropping of water heated to 150° F. onto the ulcer has succeeded when all other methods failed. In ulcers where the sloughing tendency is marked, the constant application of warm antiseptic lotions of boric acid or the perchloride of mercury is also to be recommended; and quinine, either in the form of drops or lotion, acts well in some cases. Eserine is recommended by some surgeons in the treatment of these ulcers, and occasionally no doubt the drug is useful; it has, however, to be prescribed with great caution, because of the danger of posterior synechia in consequence of the iritis which is so often present. It must also be avoided when there is much pain or injection of the ciliary vessels. He believes that it is only in rare instances the best drug to use, and that it had better be avoided by all those whose experience is not large.

When an ulcer is spreading rapidly and hypopyon is a marked symptom, paracentesis of the cornea will often determine a rapid improvement. The pus in the chamber is occasionally stringy, and will not come away with the aqueous. Gentle traction with an iris-forceps will generally remove it; but if this is not easily done, it is better not to persist in the endeavor, as the emptying of the chamber of the aqueous will often so alter the condition that a rapid absorption of the pus afterwards takes place. The opening into the chamber must be so made that adhesion or prolapse of

the iris may not result. If this latter unfortunate accident should happen, either as a result of paracentesis or spontaneous perforation of the ulcer, the prolapsed portion of iris should be gently freed from its adhesion and excised, unless the prolapse has existed for some time or the perforation of the cornea is very large, in which case it is better to leave it.

Another way of dealing with these ulcers has been recommended by Saemisch, and is often resorted to with success. It consists in making an incision through the floor of the ulcer with a Graefe knife, both the puncture and the counter-puncture being made in the cornea just outside the margin of the ulcer.

Another method of treating cases of hypopyon ulcer has recently attracted considerable attention: that is, subconjunctival injections. Perchloride of mercury in strong solution was first employed; although the result was good, the injections were frequently followed by very severe pain and inflammatory reaction, and in some instances the conjunctiva became permanently adherent to the sclerotic. The strength of the solution was then gradually reduced till finally one of 1:4000 was used. This injection gave rise to but little irritation, and was attended with equally satisfactory results. From this it was assumed that it was the fluid rather than any specific action of the mercury that caused the improvement in the ulcer. Lately a four-per-cent. solution of common salt has been used with good effect. It is probable that the favorable results following these injections are due to a quickening influence which they have on the lymph circulation, which hastens the elimination of the noxious material causing the ulceration. It is known that salt is very active in accelerating the lymph circulation, and it is therefore probably the best agent to use. The author has tried this treatment in a few cases, and so far is favorably impressed, but hesitates to express an opinion before he has a larger experience.

When ulcers have healed, opacities of the cornea more or less dense are usually left. These are permanent, and cannot be removed by treatment; but sometimes the opacity is larger than is really needed for the healing of the ulcer, Nature being too prolific in her efforts for repair. In such cases the cornea is often opaque for some distance outside the border of the ulcer; and if the cells causing the opacity do not disappear when the ulcer has healed, clearing can often be effected by the use of the yellow oxide of mercury ointment, calomel, iodide of potash, opium, or other drugs the action of which is to increase the lymph circulation through the cornea. The yellow oxide of mercury, combined with massage of the eyeball, is the treatment most usually adopted, and gives the best results. Care must be taken not to prescribe this ointment until all inflammation has ceased and there is danger of the new cells changing into fibrous tissue.

THE RISKS OF ANESTHESIA.

It is stated that sixty-one deaths under anesthesia have occurred within the past year in the United Kingdom, of which fifty-two were from the administration of chloroform. This would be a fearful indictment against the use of that anesthetic, if supported by statistics of the relative number of patients subjected to its influence and to the influence of other anesthetics. But if the number of chloroform cases was fifty-two times the number of nitrous oxide cases, chloroform would appear to be no more dangerous, although it might have caused fifty-two deaths for one death caused by the latter anesthetic.—*Medical Press and Circular*, Jan. 22, 1896.

VALUE OF VOLUMINOUS INTESTINAL ENEMATA OF WARM SALINE SOLUTION IN POST-PARTUM OR OTHER HEMORRHAGE.

In the *Australian Medical Gazette* for December 20, 1895, McNeill tells us, first, that in cases of post-partum hemorrhage the treatment by transfusion or sterilized intravenous saline solutions has long received well merited attention; and secondly, that the value of voluminous intestinal enemata of warm water and salt in such cases is insufficiently appreciated, and such treatment applies to military and other surgery as well as to obstetric practice. But to be effectual the tube must penetrate the sigmoid flexure and command the absorptive powers of the descending, transverse, and ascending colon; therefore a long tube must be used, and the injection pushed to tension limits.

The old pathological axiom that "powers of absorption are in inverse ratio to powers of pressure" comes into force in an astonishing manner in the case of a depleted arterial system, as the case reported illustrates.

The author does not think the absorptive capacity of the large intestine has been sufficiently recognized as an alternative (on the

spur of the moment) to transfusion or intravenous injection.

A good many people join the majority every year from loss of blood—more in the battle of the bed-room than in that of the "tented field." And if it prove true, as in the writer's case, that a long enema-tube is a fair substitute for an expensive and difficult transfusion apparatus, a rather important departure in surgery has been made.

The case, very briefly, is as follows:

Mrs. X.; abortion, flooding, practically dead from hemorrhage; respiration ceased; cardiac action reduced to faint muscular contractions, audible by stethoscope; no pulse anywhere; unconsciousness absolute; body cold; power of deglutition, as well as sensation, completely gone.

The arterial system was empty when the physician was called in; in fact, the patient was practically a dead woman. Chiefly for the sake of doing "something," he poured the contents of the kitchen kettle into a large basin, cooled the water to tepid by additions from the bed-room jug to the volume of between one and two gallons, tossed in a teaspoonful of salt from the cruet, and filled the large intestine to tension limits by means of a long tube, which he happened to have attached to the syringe in his bag. Removed fetus, clots, etc., by rapid digital movement, and employed artificial respiration as for the drowned. He had injected hypodermically both strychnine and ether, with no result whatever.

After some fifteen or twenty minutes the woman began to breathe. She was soon able to swallow a stimulant, and made an uninterrupted recovery.

He has no doubt whatever that the voluminous injection saved her, and, as evidence, he states that none whatever of that large quantity of water was ever seen again. None was returned. In two days she had a "solid" evacuation, but all that gallon or so must have been absorbed into her circulation in a very short time, and, aided by artificial respiration, set her heart going again.

EGYPT AS A HEALTH RESORT.

WATSON WILLIAMS, writing on this subject in the *Bristol Medico-Chirurgical Journal* for December, 1895, states that the affections for which Egypt is best adapted may be briefly summarized as follows: Chest affections, particularly pulmonary tuberculosis, bronchitis, and asthma (especially when complicated with bronchitis).

Canney gives as pathological conditions in which the patient will derive great benefit: Phthisis — non-erethetic, hemorrhagic, non-acute cases of first or second stage (especially commencing at period of deposit without very acute symptoms), chronic quiescent with or without cavities, and cases associated with bronchitis; asthma, idiopathic and symptomatic; chronic bronchitis and emphysema; cases convalescent from pneumonia, pleuro-pneumonia, and pleurisy, where the structures have not returned to the normal state; chronic nasal and pharyngeal catarrh, and Eustachian deafness; cases of mental strain, breakdown, and irritability from overwork, especially such cases when associated with gout, arterio-sclerosis, fibroid kidney, atheroma, and age; cases of hemiplegia and paresis dependent upon vascular changes other than embolism, especially those cases which are associated in etiology with the preceding class; Bright's disease in all its forms other than acute, and albuminuria generally, and after pregnancy; rheumatoid arthritis, gout and associated lithiasis, and renal colic; cases of imperfect convalescence from acute specifics such as scarlet fever, typhoid fever, influenza, etc., and especially if the kidneys have been involved; hepatic dyspepsia and lithemia; and rheumatic fever after the attack. Sandwith has paid special attention to the question of hemoptysis in Egypt, and finds that it is a rare symptom there.

It is hardly necessary to mention all the affections in which benefit may be expected from a visit to Egypt under proper supervision. But it is well to remember that there are a large number of conditions which contraindicate this course. First, there are the very numerous patients in advanced consumption who are better at home, where they at least can have all the comforts that home alone can provide, and where they are surrounded by friends, and it is better to advise them to avoid the dangers and fatigues of a long journey only to land themselves in a hopeless condition amongst strangers. Any tendency to diarrhea amongst the phthisical, convalescences from dysentery and typhoid, well marked diabetes, and tuberculous kidneys, are unsuitable conditions.

As regards heart affections, it is difficult to understand why angina pectoris, hypertrophy and dilatation of the heart, aortic regurgitation and aneurism should not benefit by residence in Egypt; though it is neces

sary, of course, for these cases to be under the same careful treatment as would be considered necessary at home.

TREATMENT OF HEMORRHAGES.

WRIGHT, in a paper on this topic in the London *Lancet* of January 18, 1896, after considering the conditions diminishing the coagulability of the blood, deals with the question of the treatment of urticarias which are associated with deficient blood-coagulability. He thinks it probable that most urticarias fall under this category. Instances in point are the urticarias which result from eating unripe or acid fruit; these may almost certainly be attributed to a diminution of blood-coagulability due to the abstraction of calcium salts from the blood by the vegetable acids. Again, the urticaria which supervenes upon the eating of certain mollusks and crustaceans is, if one may judge by the analogy of what happens in animals, associated with a diminution of blood-coagulability. There is yet another example of the association of diminished blood-coagulability with urticaria, in the case of the urticarious eruption which, as Shore first showed, occasionally occurs in dogs whose blood has been deprived of its coagulability by an injection of peptone.

The author was led, by the analogy of these facts, to inquire whether the urticaria which frequently supervenes upon an injection of anti-diphtheritic serum is also associated with a diminished blood-coagulability, and in the few cases which have come under his personal observation he has found that the blood-coagulability is really notably diminished.

A practical point in treatment would appear to result from these considerations. Whenever we are dealing with an urticaria which is associated with a diminished blood-coagulability, any method of treatment which will augment blood-coagulability will, in all probability, exert a favorable influence upon the course of the eruption. Acting upon this assumption, he has treated the few cases of post-antitoxin urticaria which have come under his notice with fifteen- to thirty-grain doses of calcium chloride. This treatment was apparently very successful. In one typical instance the coagulation time of the patient who was suffering from acute urticaria stood at eight minutes, but within a few hours after the administration of the calcium chloride it had come down to four minutes and the rash had entirely disappeared. This method of treatment would appear, therefore, to deserve investigation at the hands of those who have frequent opportunities of observing this form and other forms of urticaria.

The treatment of urticaria by carbonic-acid inhalations would hardly appear to be a practical method. Its results would have a certain theoretical interest, as it seems probable that the nocturnal supervention of urticaria, like the nocturnal supervention or aggravation of hemophiliac hemorrhages, must have some relation to the diminished nocturnal output of carbonic acid.

In all cases of urticaria associated with diminished blood-coagulability, just as in all cases of hemophiliac bleeding, it is of the utmost importance to avoid diminishing the blood-coagulability by the administration of wine. Wines, especially the more acid ones, diminish blood-coagulability by virtue both of the alcohol and the free citric and tartaric acids they contain, which abstract lime salts from the blood. In a case which came under the author's notice incidentally, even the smallest quantity of any wine, except port wine, produced a slight edema of the fingers and an urticarious eruption; the urticaria was a mere unregarded incident in a case of incipient tuberculosis which was being treated with creosote. If, however, the urticaria was really referable to a deficiency of lime salts in the blood, it was a therapeutic indication of the utmost importance, for Metschnikoff has shown that one of the methods of defense which is employed by the organism is the encapsulation of the intra-cellular tubercle bacilli in capsules of lime.

OBSERVATIONS ON COCAINE ANESTHESIA.

CLARKE, in the London *Lancet* of January 18, 1896, says that, like many surgeons who have much out-patient work, he has for some years past made extensive use of cocaine anesthesia, and he gives his experience of it, for two reasons: first, because he is convinced that in many cases the solutions, whether used for superficial application or for hypodermic injection, are insufficiently diluted; and secondly, because, of late, improvements in the composition of solutions for hypodermic use have been suggested.

The scope of the method may be illustrated by the cases in which the author removed cutaneous tumors, such as rodent ulcer and sebaceous cysts of the scalp; circumcision; excision of simple ganglia about

the wrist and the ankle; the opening of deep abscesses, such as ischio-rectal and perineal, the skin being free from edema and redness; tenotomies; excision of tuberculous glands when free from deep adhesions; and also as a superficial application for the removal of tonsils and adenoids in adolescents and adults. The more serious operations are unsuited to the method, on account of unforeseen difficulties and complications which may arise and demand prompt and energetic measures, but in emergencies and exceptional cases—*e.g.*, tracheotomy—cocaine may be used. As an example of the use of the drug in an emergency, the case related by Mr. Hartley is of interest: that surgeon successfully tied the external iliac artery after injecting a two-per-cent. solution. In parts to which the elastic band can be applied, more latitude for the drug is obtained; thus Bryson, using a four-per-cent. solution, performed double castration after surrounding the base of the scrotum with an elastic ligature.

The smallest hypodermic dose he has observed to produce faintness and nausea was one-tenth of a grain; this was in the case of a man aged sixty-five. He has found that old people are especially susceptible, and it is advisable in every case to have brandy and amyl nitrite at hand. Probably, as is the case with chloroform, degeneration of the heart is the condition most to be feared. The application of cocaine to mucous surfaces has given rise to fatal accidents. It must, moreover, be borne in mind that many cases attributed to idiosyncrasy have been due to the use of injudiciously strong solutions or to the injection of the drug directly into veins. With proper care, even in regions rich in veins, such as the lower part of the rectum, the method may be safely practiced; thus Ricard has operated for hemorrhoids after producing anesthesia by a one-per-cent. solution, the needle being plunged deeply into the tissues and gradually withdrawn as the injection was made.

For some years the author has employed a one-per-cent. solution for hypodermic injection and a two-per-cent. solution for mucous surfaces; but latterly, influenced by the experience of Schleich, he has diminished the strength of the hypodermic injections. Schleich recommends a solution made up of cocaine hydrochlorate and sodium chloride, of each 3 grains; morphine hydrochlorate, ⅓ grain; distilled water, to 3 ounces. The addition of the sodium chloride was found to diminish the pain of injection. Bransford Lewis anesthetized the corium with this solution, but in the deeper tissues the anesthesia was not perfect. This has been Clarke's own experience, and latterly he has used a ½-per-cent. solution in removing a rodent ulcer of the nose and in other minor operations with complete satisfaction. It is impossible to keep weak solutions for any length of time without fungi appearing in them; therefore it is preferable to make the solution fresh from the solid drug for each operation. For this purpose the writer has had made for him pellets, each containing one grain of cocaine hydrochlorate and half a grain of common salt. One such pellet dissolved in three drachms of boiling water gives a sterile ½-per-cent. solution, which is cooled by placing the vessel in cold water or on ice. Tested on himself it produced in one minute complete anesthesia, which lasted exactly a quarter of an hour. When the elastic band was used the anesthesia was complete for twenty minutes, and after the band was removed at the end of this time the anesthesia lasted ten minutes longer.

When injections are made for the purpose of anesthetizing the skin, the corium should first be filled with the solution. This is accomplished by using a very fine needle, and introducing it almost parallel to the surface of the skin. A few drops are injected, causing a slight wheal to appear, and after a pause of a few seconds the needle is pushed further, and the process is repeated until the whole of the corium is infiltrated. The subcutaneous and deeper tissues are to be treated in a similar way. This method has been described in detail by Schleich [see THERAPEUTIC GAZETTE, March, 1896, page 195], but it has been used by many surgeons, including the writer, for years. The merit of showing the anesthetic effect of fluids injected into tissues so as to cause pressure on the nerves, and the suggestion of making the addition of common salt to solutions of cocaine, apparently belong to Schleich. There is, however, a limit to the desirable degree of infiltration. If the wheal produced by the entry of the fluid into the tissues is very tense, the parts remain tender and the skin red for over twenty-four hours.

As the result of a personal experiment the writer can say that for the first five minutes the band gave rise to but little discomfort, but after that the discomfort increased until at the end of twenty minutes he was glad to get it off. In an operation which can be completed within fifteen minutes the band is

not necessary, but in old people it is advisable to apply it until after the chief incisions have been made, so that the tendency to absorption of the drug may be diminished. In some cases the band is required in order to secure a wound unobscured by blood. If the band is used for more than a quarter of an hour, tenderness and redness follow in the part which has been subjected to the action of cocaine.

It need hardly be mentioned that perfect antiseptic precautions should be observed, yet some cases have come to the author's notice in which subcutaneous abscesses have followed hypodermic injections of cocaine. These have been due to the lack of simple precautions. An ideal syringe should be capable of being placed in boiling water with the other instruments, and at the same time should be perfect as a hydraulic machine. The syringe he has used for some years without any mishap answers the second, but not the first, of these requirements. By using it solely for the one purpose, and by cleansing it with a five-per-cent. carbolic solution before and after each operation, it has been kept aseptic. It is also kept in an air-tight metal case, which keeps the piston moist. The instrument was made for him by Mr. T. Hawksley, who has also brought to his notice two other instruments — one with a solid steel piston fitted with cork; this can be placed in boiling water without detriment, but the cork fittings would be liable to wear and become defective; the other is the instrument used for mercurial injections in syphilis—it has platino-iridium needles and an ingenious rubber piston (the latter would prevent its being sterilized by heat). A perfect syringe has yet to be found.

Lucas Championnière has recently suggested guaiacol dissolved in olive oil as a substitute for cocaine. The writer has tried on himself a solution of thirty grains in one ounce of olive oil, and finds it produces anesthesia but causes considerable swelling, and, while in the central part of the swelling there is anesthesia, there is much smarting at the peripheral part of the area into which the fluid has been injected. The smarting lasts much longer than the anesthesia. He is not, therefore, inclined to try this drug on patients.

THE NATURE OF ANESTHESIA.

In the London *Lancet* of February 1, 1896, the well known anesthetist BUXTON considers this subject, first pointing out that all anesthetics in common use enter the blood-stream through the lungs. The inhaled vapor in passing over the pulmonary mucous membrane produces changes in its epithelium which, according to McKendrick, Newman, and Coats, are inflammatory in character: "The capillaries are contracted, their walls become less distinct, and the blood-corpuscles in them become partially dissolved." These changes are, however, rendered less and less as the vapor employed is diluted more and more. It is probable that these effects are the result of an irritant as far as the epithelial cells and capillaries are concerned. The influence upon the corpuscles is, however, different, and, furthermore, varies in the case of different anesthetics. In every case, blood removed from the body and shaken with an anesthetic shows destruction of the corpuscles and reduction with pouring out of the hemoglobin. It would appear, also, that a similar if a less marked phenomenon occurs in the body. Da Costa, of Jefferson College, Philadelphia, has demonstrated that "etherization produces a marked diminution in the hemoglobin of the blood." He finds, also, that with destruction of the red discs a change in the character of the leucocytes becomes apparent. He has been investigating this point, and up to the present time has found that a decided diminution in the corpuscles takes place under nitrous oxide, ether, and chloroform. It is, however, not improbable that factors other than the anesthetics may be found at work in bringing about the result. The combination or association between the gaseous anesthetics or vapors and the constituents of the blood must be a loose one, since in their presence oxygen is displaced. Were they to form combinations as stable as that which carbonic oxide establishes, the anesthetic would not only displace the oxyhemoglobin but would render its reformation impossible. Hence death must result. Whether or not in certain conditions the corpuscles have less power of again taking oxygen after prolonged anesthetization, it is impossible to say. It seems probable that such is the case.

Deoxidation of the tissues was at one time thought to be the explanation of anesthesia; we now recognize that this is not so, for among other reasons we can produce profound anesthesia with hyper-oxygenation, and many deoxidating bodies have no anesthetic properties. When it is remembered that the tissues are dependent upon the red corpuscles for their nutrition, this question

of the destruction of the latter by anesthetics assumes a position of great importance. Hayem has demonstrated that in anemia and diseased states of the kidneys and liver the corpuscles are manifestly deficient in quantity and quality; and Haldane, working with Lorrain Smith, has asserted that the corpuscles possess a different oxygen capacity. If, for example, one layer of these bodies can acquire and convey a certain amount of oxygen to the tissues, another will carry more or less, as the case may be. We have yet to learn how far pathological conditions affect this oxygen capacity of blood-corpuscles. It is not impossible that the behavior of anesthetics towards the corpuscles, which it has been shown they affect so profoundly, may be such as to modify in a material degree their capacity for conveying oxygen to the tissues.

The behavior of anesthetics towards corpuscles also illustrates a further and important point in our present consideration. There is a common tendency to credit the central nervous system with absolute control over the vagaries of anesthetics, to believe that if the ganglionic centres are keeping pace with the requirements of the organism no fear of danger need be entertained. Certainly in the case of chloroform this belief is delusive. That body is a virulent protoplasm-poison. Ether and nitrous oxide also act upon undifferentiated protoplasm, and all anesthetic agents are able to influence living tissue even when devoid of nervous connections. Pickering, working with the embryonic heart, has demonstrated that not only does chloroform act directly upon tissues when they are freed from nervous control, but so far differentiates between them as to affect them in various degrées; for while chloroform depresses the rhythm, causing diastolic stoppages of the auricle and ventricle, it proves itself much more toxic to the auricle than to the ventricle. Ether stimulates the embryonic heart, although very large doses will eventually stop it in diastole. The frog's heart, again, can be removed out of the control of the central nervous system, and be again and again stopped with chloroform or ether when one or other of these is allowed to circulate through it in an adequate fluid; and while it is often impossible to restore it in the former case, it is difficult to kill it when ether is perfused. It must be, then, that these anesthetics are able, quite independently of the central nervous system, to act upon corpuscular and muscular tissue.

Thiem and Fischer's research indicates that chloroform can produce a change in the heart muscle which appears identical with fatty degeneration; while McWilliam has proved that dilatation changes in the capacity of the heart as a whole follow immediately on the inhalation of chloroform. These changes are also influenced largely by the actual quantity of chloroform contained in the blood, as well as the length of time it has access to the tissues. It is further probable that the changes which we know take place as a result of alcohol possess analogues in those brought about by anesthetics, and so that the nervous tissue is also structurally affected by them.

It appears, then, not improbable that the effects produced by anesthetics upon the corpuscular elements of the blood may sooner or later be shown to produce those destructive changes in the muscle of the heart and other tissues which are found to undergo fatty changes as a result of inhaling chloroform, etc. The lessened oxygen-supply to these tissues may, it is hypothecated, produce such structural changes. Waller and others have demonstrated the changes in isolated nervous tissue, but as yet no full research has been conducted upon the nervous elements as they occur in the body. An attempt was made in this direction by the writer in working out the physiological action of nitrous oxide gas, with results which proved the anesthetic properties of that gas. It must, then, appear probable that the changes brought about in the blood elements react upon the more stable tissues by lessening their supply of oxygen while the tissues themselves are brought under the influence of the anesthetic which the blood-stream conveys to them. The next changes which are brought about by the anesthetic are those connected with respiration, circulation, and nerve-regulation.

In obedience to stimuli conveyed from the lungs, diminution of the amount of oxygen, or its excess, leads to corresponding respiratory efforts. In association with these are the somewhat complicated series of changes in the blood-pressure, the cardiac rhythm, the dilatation and constriction of the capillary areas which go to form the blood circulation. Not only may these be thrown out of gear by impediments to the pulmonary circulation arising from asphyxia, the commonest danger of anesthetics, but they may be profoundly affected from without through skin or visceral stimuli, leading to disaster.

Oliver, by means of his ingenious instrument the arteriometer, is able to record changes in the size of the blood-vessels under various circumstances. He very kindly assisted the writer in some observations made at University College Hospital, and they found that during various stages of anesthesia the pulling upon the intestines, the spermatic cord, etc., incidental to various operations upon viscera, produced the most startling changes in the diameter of the radial artery. And these changes varied under different anesthetics. This must indicate a profound series of impressions upon the control system. To the writer's mind, many disasters under anesthesia are explicable by these observations. Under chloroform especially the shock conveyed by the removal of a tooth would, if the anesthesia were not deep, in a certain number of cases produce reflex inhibition of the heart. That this reflex inhibition does occur, has been proved by many observers, but the results of Amrus and Gartner are conclusive: even where the animal was deeply anesthetized they found weak faradic currents applied to the vagus produced a very prolonged heart-stoppage, and when the heart-pause had persisted for a certain time respiration also failed, slight spasms succeeding.

Lauder Brunton describes a form of death under anesthetics which is certainly a common one, and which, when recognized, must relieve anesthetics of the responsibility in very many fatalities. Adopting Caspar's views, he attributes these deaths to neuroparesis. Not only do circulation and respiration fail simultaneously, but all the nervous centres are instantly annihilated. The death is one from shock. It may follow shock from fear or injury; it may, and does, result from pain felt during imperfect anesthesia, or even before any appreciable amount of the anesthetic has been taken.

Anesthetics are, however, not simply dangerous *per se*. They too frequently have to be given to those whose tissues are already in a diseased condition. Take anemia, fatty degeneration, "renal inadequacy," various functional and organic diseases of the ganglionic centres—of the heart,—and cyanosis the result of obstructive pulmonary or cardiac diseases, as examples of the many pathological states which place a patient, even before taking an anesthetic, in a condition which renders him especially liable to suffer from such phenomena caused by anesthetics as destruction of corpuscles, irritative inflammatory changes in the epithelium of the lungs and kidneys, fatty changes in the heart, irregular and uncontrolled nerve-storms. All such people are sometimes compelled to take an anesthetic. In their case not only must the rules be adopted in giving the anesthetic which in the normal human being permit of the production of narcosis without interference with the vital processes of life, but full allowance must further be made for the crippled condition of their organs and tissues, so that they may, in spite of their disabilities, carry on life during and throughout the anesthesia. This is the great problem, and this it is which taxes the knowledge, skill, and resource of the anesthetist.

What, then, are the practical lessons our present knowledge teaches us? In general we must conclude that the action of the anesthetic should be restricted within those clearly defined limits which involve only the higher ganglionic centres—that under no circumstances should incomplete anesthesia be deemed sufficient for even the most trivial operation.

Of methods our present knowledge allows us to say much, but it is impossible for the writer to do more than indicate in the briefest way what rules should guide us. All methods involving asphyxial symptoms are open to grave censure. In the case of all anesthetics it is possible to produce unconsciousness and yet to avoid cyanosis. Nitrous oxide gas, once thought to be an asphyxiant, is now known to be a true anesthetic, capable of being given with oxygen or air, and of producing peaceful anesthesia without any asphyxial phenomena. Of ether the same is true. Of chloroform it must be said that any association between it and asphyxia must lead in the healthy subject to grave peril and in the diseased to fatal results.

A word further. Close study of the behavior of anesthetics makes the writer certain that all methods which employ a large quantity of anesthetic substances are faulty. The pneumonia, the renal catarrh, the cardiac asthenia, following anesthesia, are due, in most cases, not so much to the anesthetic as to the unwary way in which it is employed. When anesthesia is better understood, and those who employ anesthetics recognize more the responsibility they incur, when the examining boards demand of their candidates at least a nodding acquaintance with anesthetics and their uses, then will there be fewer fatalities and more common-sense practice of this branch of the healing art.

SOME POINTS IN PERNICIOUS ANEMIA.

HUNT, a recent physician to Sidney Ringer's wards in University College Hospital, London, reports in the *Lancet* of February 1, 1896, three cases of pernicious anemia in connection with their treatment with bone-marrow, and concludes his report as follows:

There does not seem to be much doubt that these were three cases of genuine pernicious anemia. In none of them was there any history of previous loss of blood, and careful examination failed to reveal any other diseases, so that they would not come into the category of secondary anemias.

The blood in each case was fairly typical; it exhibited in all the relative excess of the hemoglobin compared with the corpuscles, which, according to Hunter, is the only characteristic feature of the disease; poikilocytosis was also so marked as to point to the anemia being probably pernicious. No nucleated red corpuscles were seen in the blood, but it is apparently not common to find these unless films of the blood are dried and stained. In none of them was there any excess of the white corpuscles.

In two of the cases the urine was distinctly darker than usual, and in the case in which it was light, excess of hematoporphyrin was found. In one case there was very marked reduction of the urea; in none was there a noticeable deposit of uric-acid crystals.

In two of the cases gastro-intestinal disturbances were marked features.

The cardiac condition is of interest. All the cases were carefully examined for increase of cardiac dullness, as described by Dr. A. Foxwell in cases of debility; but in none of them was any dilatation of the heart detected. All three cases presented a well marked systolic murmur at the base on the left side, and in two of them there was a systolic murmur at the apex, all these murmurs being evidently due to the anemia. In the third case there was an early diastolic murmur, accurately limited to a small area just inside the apex, which is hard to account for. It evidently was not due to mitral obstruction, as it disappeared as the anemia became less. Eichorst describes three cases of pernicious anemia in which diastolic murmurs were heard, but all of these were at the base, and Dr. Sansom explains these cases as being due to a continuous venous hum produced in the vessels of the neck, the hum being overpowered during the systolic period by the murmur, but audible during the diastole. This could not have been the case here, because the murmur was only heard in the first part of the diastole, and, further, because it was not heard at the base of the heart. In all the cases it is noted that the veins at the base of the neck were full and pulsated, but that this pulsation was not due to any cardiac change is shown by the fact that they collapsed with the systole of the heart.

In none of the cases were there any ataxic or spastic symptoms such as have lately been described as due to sclerosis in the posterior or lateral columns of the spinal cord in cases of pernicious anemia.

In only one of the cases were retinal hemorrhages to be detected, but in two of them there were very well marked hemorrhages under the mucous membrane of the under surface of the tongue, nothing resembling which was seen in a large number of patients suffering from other diseases; so that it might be useful to look beneath the tongue as an aid to diagnosis in those cases in which an examination of the eyes is not convenient.

As regards the result of the treatment, it will be seen that the red marrow did not have the slightest effect in any one of the three cases, one of which began rapidly to improve as soon as the patient was treated by arsenic.

Goldscheider, of Berlin, was apparently the first to use the extract of bone-marrow. He gave it by hypodermic injections to a patient suffering from pernicious anemia; there was no improvement, and the patient died. Dr. Dixon Mann published four cases of chlorosis and secondary anemia which he successfully treated with extract of red bone-marrow, given by the mouth. Dr. Fraser first published a case of pernicious anemia which had greatly improved under a prolonged course of bone-marrow which was given continuously—arsenic, iron and salol being given with it at different periods. Dr. Barrs has described a case in which arsenic was given without affecting the anemia till paralysis was produced; bone-marrow was then given, with extremely good effects. In the same paper, however, another case of pernicious anemia was mentioned in which there was no improvement under bone-marrow. Dr. Stockman reported a case treated with bone-marrow, the percentage of corpuscles and hemoglobin sinking under the treatment. In the same number another case was reported by Dr. W. B. Drummond in which there was some improvement under bone-marrow, but a greater effect when arsenic was given in addition. Dr. Danforth reported a case cured by the administration of bone-marrow and

arsenic together. Dr. Billings fully reported two cases with red bone-marrow and arsenic successively; in one case there was no improvement with either, and the patient died; in the other there was no improvement with bone-marrow, but the patient got better readily under arsenic.

These cases only include those of pernicious anemia which have been treated with bone-marrow; cases of chlorosis and leucocythemia are also reported which have done well under the same treatment. Of these twelve cases of pernicious anemia, including the three reported above, treated with bone-marrow, two may be excluded, as arsenic was administered at the same time; of the remaining ten cases, eight did not improve under marrow, two of them afterwards doing well under arsenic, while two—the cases of Dr. Fraser and Dr. Barrs—were greatly benefited by the bone-marrow. The conclusion to be drawn seems to be that bone-marrow should not be given unless a thorough course of arsenic has been given and has failed.

One reason for the different results obtained in different cases may be the well known difficulty in diagnosis in this disease, as a case may be universally supposed to be one of pernicious anemia till death occurs, when some deep seated disease, especially affecting the stomach or intestines, may be discovered which has caused the anemia. Another cause may arise from the differences in the bone-marrow. If it is obtained direct from the butcher it is almost certain to be white marrow from the shafts of the long bones, consisting of little else than fat—the red marrow, which is a blood-producing organ, occurring only in the ribs and cancellous ends of the bones, and requiring to be extracted from the bony meshwork in which it lies; so that in all reported cases the source from which the marrow has been obtained should be particularly stated.

A CLINICAL TEST OF SOME OF THE SO-CALLED ORGANIC EXTRACTS.

In the *Boston Medical and Surgical Journal* of January 16, 1896, COGGESHALL records his experience and experiments in the use of organic extracts, so-called, and exposes their worthlessness. He says that his excuse for asking attention to some clinical tests of cerebrine, cardine, and their congeners, is that it has come to his knowledge from time to time that these preparations were actually being prescribed by members of the Massachusetts Medical Society, and, as the unfavorable results of such experiments are not often reported, a conclusive test carefully made and frankly reported might be of service to some of the gentlemen who have thought these preparations worthy of trial.

It is not safe to say that any new system of treatment is, *a priori*, absurd, and he disagrees with those who think that in the nature of things the theory on which the supposed effects of the organic extracts are explained must be nonsense. We know too little of "the nature of things" to hazard such offhand conclusion. He states that in the first case of myxedema to which he gave the thyroid-gland treatment, a little more than three years ago, the family physician of the patient, a man deservedly respected in the community as an excellent practitioner, simply sneered and laughed in a good-natured way at the whole thing as absurd. Yet this case has since been reported by the gentleman for whom he was giving the injections as a brilliant success, and we all believe today in thyroid therapy.

But Coggeshall feels that he has seen in his own experience enough to convert into confirmed disbelief the natural skepticism with which he regarded the theory of organic extracts in general, lacking, as this theory does, all proof from the present state of physiological knowledge.

The theory alluded to has been stated by Dr. Hammond himself with perhaps as near an approach to clearness as it is capable of. His own words are these: "That all the organs of the body possess the power, when in a state of health, of secreting from the blood the peculiar substance that they require for their nutrition, and that they take this substance and no other, never making a mistake in the matter. If through disease or other derangement of function they lose this power, or if the peculiar pabulum they require is not in the blood in sufficient quantity, their functions cease to be normal. If we supply to the blood the peculiar principle which a diseased or disordered organ requires, we do that which nature, unassisted, cannot or does not do."

In the writer's experiments he made use of the following preparations: Cerebrine, ovarine, cardine, and testine, made by the Columbia Chemical Company according to the formulas of Dr. Hammond; testiculine, made by Morgan of Philadelphia, and also that made by Gibier of New York; and, finally, a test solution made by himself, and consist-

ing of 70 parts of a one-per-cent. solution of boric acid in boiled and filtered water, and 30 parts of glycerin.

The twenty-three cases experimented upon were taken, five from private practice, and eighteen from his clinic at the Boston Dispensary. As far as possible, Coggeshall selected cases to form groups of six, each group consisting of fairly typical examples of the same disease.

First, there were six cases of irritable and irregular heart in young men, without any organic lesions that he could discover; three of them were directly traceable to abuse of tobacco. Four of these cases were treated with cardine, and two with the control solution.

Second, there were six fairly typical cases of simple neurasthenia in young women. Of these, two were treated with cerebrine (Hammond), two with cerebrin (another brand), and two with the control solution.

Third, there were six cases of young women suffering from dysmenorrhea, which the most careful examination that he could make and the history of the symptoms led him to regard as the ovarian type. Of these, four were treated by ovarine and cerebrine on alternate days, as advised by the manufacturers, and two by the control solution.

Fourth, there were three cases of sexual hypochondriasis from masturbation, presenting the usual symptoms of mental anxiety and depression, with complaints of loss of memory, failing power of application, etc. These were treated with cerebrine and testine, on alternate days.

Fifth, there were two cases of paralysis agitans, treated by testiculine from Morgan and Gibier.

In none of the cases, except those in the fifth group, was any other treatment given at the same time, save that those of each group who were receiving the control solution received also more or less informal suggestion. This was carefully avoided in those under the organic extracts. In no case was the treatment continued for less than one month.

The dose of Dr. Hammond's preparations was five minims hypodermically, daily, for the first fortnight, doubled in the third week, and again doubled in the fourth week. The control solution was given in exactly the same way.

The details of the cases need not be given; the essential points were as follows: In the ovarian dysmenorrheas the treatment was begun in each case just at the end of a menstrual period, so that the next period would fall in the fourth week of treatment. The results in all these cases were absolutely negative. Four of them have since improved decidedly under other treatment. One, treated with the test solution, has not improved at all under any treatment, and suffers so much that ovariotomy has been advised as the only means of relief. One case has been lost sight of.

Of the cardiac cases, the three distinctly tobacco hearts all began to improve toward the end of the month. One of these was treated by control solutions, and improved as much as the others. Tobacco, of course, was stopped in these cases, and their improvement was no greater than the author has repeatedly seen in similar cases without treatment. The other cardiac cases could not be so easily traced to an obvious cause, but coffee, tobacco, etc., were stopped in these also; none of them showed appreciable improvement.

The neurasthenic and masturbation cases were advised as to the general regulation of diet, exercise, and sleep; and cold sponge-bathing was ordered. Without this much additional, it would have seemed unfair to expect any medicine to do its best work. Of these cases, one neurasthenic, a very imaginative girl, highly susceptible to the effects of suggestion, showed marked improvement under cerebrin for the first fortnight, while the treatment was a novelty, and during the next fortnight lost all she had gained. The others showed no marked effects at any stage of treatment. Two of the neurasthenics have since improved markedly under gymnastics, tonics, and forced feeding, with a free use of suggestion but without direct hypnotism. Two of the masturbation cases have also improved very greatly since the animal extracts were given up for other treatment.

In all the above cases, except those receiving control solution, everything was avoided which might help the effect of the organic extracts by suggestion, as the author suspected that the apparent improvement in such cases which others might have seen was traceable to the hope and expectation excited by a treatment that impressed the imagination, and by the assurances of a cure given by the physician. The patients were simply told that they were to receive a tonic which was supposed to act better if given hypodermically.

The cases of paralysis agitans were suffering too much to justify the neglect of any

means for their relief; and tonics, and especially a mixture of hyoscyamus and nux vomica, were given together with massage in one case. The treatment by injection was kept up for two months in one case. In the other the trial was still fuller: the injections were continued for four months at one time, and after an interval of three months were renewed for four months more at the request of the patient, who fancied that she saw some benefit from the first trial. The author could see no benefit in either case from the injections.

A word in conclusion as to the physiological effects of these extracts. In almost all the cases the pulse rose five to twenty beats a minute within a quarter of an hour after the first two or three injections. The subsequent injections showed no effect on the pulse. The effect noted was as marked after the use of the control solution. In some of the most nervous patients the temperature rose or fell, from one-tenth to one-half a degree, after the first few treatments. This also disappeared as the novelty wore off. In several cases the breathing was quickened by from one to four respirations a minute. All these effects occurred in some of the patients receiving control solution.

In two of the cardiac cases, sphygmographic tracings were taken before and after the first injections, and again at the end of a fortnight. They showed no appreciable or constant change. In the same two cases the author succeeded in obtaining a fairly trustworthy measurement of the daily quantity of urine, and made five examinations of specimens from each at intervals of a week. The quantity, specific gravity, and percentage of urea were not affected. The only changes were within the normal variations of health.

Coggeshall believes that these so-called organic extracts are physiologically inert and therapeutically worthless.

THE TREATMENT OF CHILBLAINS.

In an article on chilblains, published in the *Presse Médicale* of December 28, the writer deals with the local and general treatment of the affection, and with its prophylaxis. In the severe forms of non-ulcerative chilblain, when the skin is red, tense, and shining, he says moist applications should be used; the fingers, the hands and the feet should be wrapped in aseptic compresses saturated with a decoction of walnut leaves, in the proportion of from 150 to 225 grains of the bruised leaves to a pint of water. After the irritation has been allayed, the wet dressing is replaced by one of the following preparations:

(1) Boric acid, 15 grains;
Tannin, 45 grains;
Vaselin, 150 grains.

(2) Starch,
Lycopodium, of each, 150 grains;
Tannin, 45 grains.

In the less severe form it is sufficient to apply the decoction night and morning, and during the day to use one of the preparations previously mentioned.

Ulcerated chilblains, says the writer, may be treated like ordinary wounds. At first they are to be carefully washed with Van Swieten's liquor; then compresses saturated in this solution, to which an equal quantity of water has been added, are to be applied. Touching the ulcerated parts with tincture of iodine or with camphorated naphtol is efficacious, followed by an aseptic dressing of fine tarlatan covered with borated vaselin or with glycerole of starch. When the chilblains are granulating, we should touch the affected parts lightly with silver nitrate. In obstinate cases a plaster of zinc oxide should be employed.

The general treatment should not be neglected, especially in scrofulous persons. Cod-liver oil and iron iodide may be very beneficial, provided they are employed for several consecutive years.

The influence of preventive treatment is indisputable. Persons who are predisposed to chilblains should be advised to take a great deal of exercise and to avoid, as much as possible, prolonged exposure to cold; the sudden change from heat to cold, and *vice versa*, according to Brocq, are equally harmful. The continued employment of very hot water during the winter often prevents an attack of chilblains, and is a prophylactic measure which should certainly be tried. The following preparation, says the writer, has been successfully employed by M. Brocq:

Quinine sulphate,
Ergotine, of each, ¾ grain;
Powdered digitalis leaves, 1-12 grain;
Extract of belladonna, 1-60 grain.

The dose is from two to four such pills a day, to be taken before meals. This treatment should be begun before the time when the chilblains usually appear, and continued during the winter, with occasional intervals of rest. In severe and obstinate cases it acts as a vaso-motor regulator and as a regulator of the circulation.—*New York Medical Journal*, Jan. 18, 1896.

ALCOHOLISM, WITH SUGGESTIONS AS TO TREATMENT.

In the *Quarterly Journal of Inebriety* for October, 1895, DUNHAM, of Buffalo, asserts that the medical treatment of alcoholism, now continued for about five days, on the average, occupies about one-tenth the time required to materially benefit these cases. The indications to be met generally are, largely, a disturbance of the nervous system, which manifests itself in an irritable disposition, sleeplessness, fits of depression, and, later, excitability, with all the phenomena of *mania-a-potu*. The digestive processes are sluggish and weak in character, the excretions are deficient, and there is a general loss of muscular tone.

The excitable stages are best controlled by chloral and bromides; or, when there is much delirium with a strong pulse, hypodermic injections of hydrobromate of hyoscine, $\frac{1}{100}$ to $\frac{1}{150}$ grain, to be repeated in six hours. In other cases smaller doses than the above will prevent the unpleasant effects of hyoscine, and yet have a good result on the cerebral congestion. Stimulants should be rapidly withdrawn, and when given should be administered in milk and other foods, but never should be given clear or "straight." If there is much nausea, it can be controlled by small doses of calomel and bismuth, frequently repeated, with nourishment, given a little at a time and often. As soon as the patient is able to take nourishment, it should be fluid in character and large in quantity, highly seasoned. If the bowels are constipated, they should be opened by injections of water and glycerin when the patient is not able to take alkaline aperients through the stomach in the ordinary manner. An infusion of digitalis, tablespoonful doses, with ten grains of citrate of potash, every four hours, will increase the urinary excretions when they are diminished. Hypodermics of the nitrate or sulphate of strychnine, with a little digitalin, are the best to overcome heart-weakness, and often relieve the delirium. Tablets made as follows for hypodermic use will be found very serviceable:

Gold and sodium chloride, 1-24 grain;
Strychnine nitrate, 1-60 grain;
Nitroglycerin, 1-300 grain;
Atropine sulph., 1-200 grain;
Digitalin, 1-60 grain;
Sodium chloride, 1-8 grain.

Cold to the head overcomes delirium when due to congestion or active hyperemia of the meninges.

When the acute symptoms have subsided, a three or four weeks' course of curative treatment should begin. A tonic, consisting of nux vomica, hydrastis, capsicum, and an infusion of gentian, should be given four times a day and in full doses. Also hypodermics of the chloride of gold in solution—one-tenth of a grain to ten minims of distilled water—should be given three or four times a day.

Tablets of the above formula are good for the first week or ten days, followed by the gold solution. The platinum needle will not corrode from the gold solution, and should be used for this reason. The infusion of gentian is used because it contains less alcohol than the tincture.

Because the chloride of gold meets so many indications in the treatment of dipsomania, there is no more reason to call it a "gold cure for dipsomania" than there is to call it a "gold cure" for consumption, where it has been used with a certain degree of success; or a "gold cure" for rheumatism with deformed joints, where it has been found valuable; or a "gold cure" for paralysis of the insane, where it is one of the most efficacious remedies.

The chloride of gold the author considers one of the chief therapeutic agents in the treatment of chronic alcoholism. It has been used in cases of melancholia, hysteria, chorea, and especially nervous troubles due to syphilis. In its physiological action it seems to be a tonic for the brain and spinal cord—an alterative like mercury; it stimulates nutrition and digestion, increases secretions and excretions, and is an aphrodisiac. Its action in this respect is like that of strychnine and phosphorus.

The belief that the impotency for a time following the treatment is due to the chloride of gold, is a delusion on the part of the patient.

Strychnine tones up the nerve-centres, and the walls of the arteries are able to contract to the normal calibre, while muscular fibres recover their healthful responsiveness.

If the alcoholic should require both punishment and medicine, as they usually do, the hypodermic method, four times a day, meets the indications beautifully. If the arms swell from the effects of the hypodermics, Goulard's extract will overcome the difficulty.

In some cases, craving for drink can only be removed by treating physical ailments. Lawson Tait reports cases of cure following the removal of the uterine appendages in

women. Indigestion is to be treated, neuralgia and nervous exhaustion to be remedied, irregular and weak heart-action to be overcome, environment and habits to be changed, syphilis and kidney trouble to receive attention. Irregular hours at meals and for sleep, the futile attempt to drink moderately, old associations in drinking, the intention to drink only beer and cider, all predispose to alcoholic excess in those who have already formed the habit.

THE HEART IN ITS RELATION TO PREGNANCY.

HANDFIELD-JONES has recently delivered a series of lectures (the Harveian) upon this subject. In the one published in the London *Lancet* of February 1, 1896, he speaks of heart-failure after delivery, and reaches some fairly definite conclusions, which are as follows:

1. Both by clinical evidence and by logical deduction we are justified in accepting the fact of hypertrophy of the left ventricle occurring in normal pregnancy as proven. In delicate and feebly developed subjects it may sometimes be absent, and in these cases signs and symptoms of cardiac insufficiency are likely to occur.

2. A certain amount of dilatation of all the chambers of the heart does normally occur in pregnancy.

3. Failure of the ventricle has a distinct effect upon the course of pregnancy. In the early months it leads to abortion, and in the later months to premature delivery. Porak confirms this point, and says that "heart troubles have an evident influence on pregnancy, by provoking metrorrhagias, by determining very often abortions or premature delivery, by producing, it may be, placental lesions, and by acting harmfully on the infant, who sometimes dies before its birth, or is born under conditions not favorable to development and disposing towards premature death."

4. The heart during pregnancy and the puerperium is specially liable to undergo fatty degeneration. This may be due to retrograde changes taking place after delivery, or may depend on the premature setting in of these changes together with an insufficiently oxygenated state of the blood, dependent partly on anemia and partly on lung disease.

5. The condition of the muscular heart-wall is of more importance during pregnancy than the valvular lesion; many women with valvular lesions pass through their early pregnancies without any sign of heart-failure, but as the heart muscle becomes deteriorated by the strain of repeated pregnancies they show increasing evidence of cardiac insufficiency.

6. Of all the forms of valvular lesion, mitral stenosis of a marked degree is the most disastrous; this is largely due to the extra strain thrown in these cases on the pulmonary circulation and the right heart. The increased arterial tension, the increased volume of blood, and the increased development of the left ventricle, all tend to produce dilatation of the left auricle and the right ventricle. The pulmonary circulation is thus kept continually congested, unless pronounced hypertrophy of the right ventricle takes place. At the close of delivery, when more blood collects in the right side of the heart, the risk is increased and the danger reaches its maximum.

The question is often brought before us: Is marriage to be permitted when the woman is the subject of chronic heart disease? Regarding this, Macdonald says: "Chronic heart disease ought to be looked upon as a grave contra-indication of marriage, more especially if it assumes the form of anything approaching to severe mitral stenosis or serious aortic incompetence. In such cases we ought, if consulted, to dissuade from marriage." On this point the author does not feel inclined to adopt Macdonald's opinion. If we read carefully over the long lists of cases of heart mischief published from time to time, we shall notice (as has been already said) that many of the women had borne several children without any complication, though undoubted cardiac mischief had existed from the time of their first conception. Provided a valvular lesion is well compensated, and the muscular tissue of the heart can be judged to be sound, and provided also that the patient is a young woman in whom processes of repair may reasonably be expected to go on at a healthy rate, there would be no just reason for forbidding her to marry. In every case it would be well, if the patient has not been under medical observation previously, to advise her to remain under medical supervision for the space of six months, or even a year, that an opinion might be formed whether the disease was quiescent and vascular equilibrium well established, or whether, on the other hand, yielding of the ventricular walls and dilatation of the cavities were slowly advancing. He quite agrees with Macdonald that we

ought not to give our sanction to marriage if, in connection with chronic heart disease, there are any serious symptoms of cardiac disturbance present, such as attacks of dyspnea, breathlessness, palpitation on exertion, hemoptysis, etc.; and this injunction ought to be the more imperative the younger the patient is and the more recent the acute disorder which has given rise to the lesion.

Abortion and premature labor often occur spontaneously in cases of failing heart; but the question is frequently asked whether it is good treatment to induce delivery in patients suffering from active heart mischief during pregnancy. The question should rather be put in another form—viz.: Do cases ever exist in which it is justifiable to bring about abortion or premature delivery? To the first form of question we must certainly answer "No," but to the second we can reply "Yes." It is true that in a certain number of cases delivery by nature's efforts alone has led to an immediate improvement in the heart's symptoms, but it is none the less true that when physicians have induced labor during the latter months because of a condition of cardiac insufficiency the result has been generally disastrous. It has been well said that the condition of any patient in whom it is thought a necessary operation is one of extreme gravity, and the mere fact of interrupting the pregnancy will not stay the cardiac degeneration which is going on. Although the patient may survive the labor, she will probably succumb during the early days of the puerperium. In practice it would seem that artificially induced labor throws more strain on the heart than when the process is originated by nature. Clearly, when the heart has already been exposed to the toil of seven or eight months' utero-gestation and is showing signs of rapid failure, it is not prudent to suddenly throw upon it the effort of labor. The cases in which we should resort to the induction of premature labor are those in which it seems desirable at any cost to relieve the diaphragm from the upward pressure of a large abdominal tumor such as the pregnant uterus.

With regard to abortion in the early months, he thinks the case is different. In many recorded instances of serious cardiac complications rendering the latter part of pregnancy, labor and the puerperium a period of continued danger, and resulting too often in death, it is clear that symptoms of commencing failure, such as palpitation, breathlessness on exertion, and malaise, had been noted as early as the third or fourth month. In such a case he fails to see the justification for exposing a failing heart to the strain of pregnancy during the remaining months of utero-gestation, and would advise immediate abortion. The emptying of the pregnant uterus at the fourth month cannot be compared with the strain of labor in the last two months of utero-gestation.

He recommends the same course in a patient who has heart disease and who has passed through three or four confinements safely; for should she become pregnant again, clinical experience demonstrates that the risk she encounters is vastly increased. No physician would lightly interfere with the course of pregnancy, but it is folly to allow things to take their course when science has taught us that the course is almost certainly laid on the downhill track.

In conducting the labor at full term, the point may be considered as established that the second stage should be made as short as possible, and that forceps or version afford most valuable aid.

Regarding the action of free bleeding during the third stage of labor, he earnestly bears testimony to its useful effect. A free loss tends to relieve the right heart from undue engorgement and considerably lessens the risks of sudden stoppage of the heart. Equally useful is the application of leeches over the liver or heart during the puerperium when blueness of the lips and face, with dyspnea and pulmonary trouble, tell a tale of an overdistended and failing right ventricle.

Of all drugs, strychnine and nitrite of amyl have seemed to the writer to be the most useful. The latter drug, by dilating the arterioles and keeping the blood in the peripheral circulation, gives temporary relief to the failing right ventricle and lessens the work of the overburdened heart. The action of strychnine as a cardiac tonic is too well known to need notice here.

In the *New York Medical Journal* of January 18, 1896, ROSENBERG specifies the earliest symptoms of the disturbed heart's action as dyspnea, palpitation, edema of the face and extremities, and bronchitis, and advises the suspension of every exertion on the part of the patient, the recumbent posture being retained during the greater part of the day. Frequent examination of the urine is indispensable. A strict milk diet must follow the finding of the first trace of albumin. As to the advisability of the early administration

of cardiac stimulants, writers are not agreed. As we do not hesitate to give these drugs in mitral insufficiency during the non-pregnant state, their administration seems to be all the more indicated when the damaged heart is suddenly called upon to perform an extra amount of work.

In case this mode of treatment is not followed by amelioration of symptoms, and the cardiac incompetency increases in spite of our efforts, the question of the propriety of terminating pregnancy may justly arise. Unfortunately, says the author, the hope is delusive that relief may be given by inducing premature labor. The reports of the majority of such cases are reports of failures, and even if premature delivery has been safely performed and the woman for the time being is improved, her condition is yet one of extreme peril from asystolism. Success can only be expected if the pregnancy is terminated before the onset of serious symptoms.

In the management of labor itself, we should endeavor to give the heart the greatest possible working space and to tone it up for the final effort; to this end the patient should be placed in a half-sitting posture, and alcoholic stimulants, camphor, strychnine and strophanthus may be given; the nitrites are indicated whenever the pulmonary circulation becomes embarrassed. The main indication is, however, to deliver as soon as possible, on account of the dangerous effect of the pains upon the heart. These operations must be performed under an anesthetic, because the mental and physical suffering of an operation without anesthesia may produce the most serious shock to the heart.

Delivery is followed by momentous changes in the circulation. If one is an adherent of Fritsch's theory, a loss of blood will appear very serious, while, according to Spiegelberg, a moderate hemorrhage may be desirable to relieve the embarrassed right heart, which he considers the immediate cause of heart-failure. Ternier, Berry Hart and others report cases in which excellent effects from venesection were observed, and, backed up by these authorities, one is justified in trying the treatment. The writer has administered nitroglycerin with the same object in view. The effects of full doses of nitroglycerin or amyl nitrite are identical with those produced by venesection; they lessen the strain upon the heart by dilating the small peripheral vessels throughout the body.

The expulsion of the placenta should not be hurried. The statement has been made that Crédé's method is not advisable in these cases, since it is apt to cause too sudden a change in the vascular pressure; manual removal of the placenta has been advised, that detachment might be gradually accomplished, but the prolonged anesthesia thus necessitated is a serious objection.

During the puerperium the heart demands constant watching, as a large number of cases have ended fatally within a few days or weeks after confinement. Rest, simple diet, and appropriate stimulants form the rational basis of treatment.

SODIUM BICARBONATE IN THE TREATMENT OF "A COMMON COLD."

BULKLEY tells us, in the *Medical Record* of January 18, 1896, that from personal experience and after many trials he has settled down to the following plan for treating the early stages of coryza in an adult of medium size and weight: Twenty to thirty grains of the bicarbonate are given in two or three ounces of water, every half-hour, for three doses, and a fourth dose at the expiration of an hour from the last one. Two to four hours are then allowed to elapse, that the effect may be seen, and the four doses are repeated if there seems to be necessity, as is frequently the case. After waiting two to four hours more the same course may be taken again, although this is not often necessary if the treatment has been begun early in the course of the "cold." He has known the doses to be repeated four times, with final good result.

As intimated, the method of treatment under consideration relates more especially to the early stage. To be promptly effective, it should be begun with the earliest indications of coryza and sneezing, and in the author's experience has rarely failed to break it up, even in persons much inclined to "colds." After the second or third day it acts less promptly, and more frequent repetitions are needed, but he has seen very good results even much later in the trouble.

When the influenza has more of the contagious character, now recognized as "grippe," the treatment is less efficacious, but is still often of service. In these cases he has combined phenacetin, five to ten grains, with ten to twenty grains of soda, and given the powders, with hot water, every two hours continuously for a day or two. He has had a large number of very striking instances of the benefit of this plan of treatment, in the past two years and especially during this fall

and winter; in some cases the treatment was begun several days after the commencement of the disease, and in one instance after it had lasted about four weeks. The latter case occurred quite recently, and the almost immediate relief to many distressing symptoms —headache, cough, malaise, etc.—was very striking; the patient was a remarkably intelligent gentleman, aged forty-five, who had been under varied treatment for the entire time.

The *modus operandi* is based upon the idea that there is an acid condition of the system developed, which is sufficient to irritate the terminal endings of the nerves in the skin and mucous membranes, and so to render them susceptible to impressions of cold, by a derangement of the capillary circulation. As this acidity is neutralized, the normal conditions return. All are familiar with the favorable effects of diaphoretics, whether medicinal or mechanical, as hot-air baths, or hygienic, as frictions and exercise, in breaking up a "cold." The soda seems to act in relieving the internal cause of the surface irritation, and has always been used singly and alone, without the aid of other measures.

In regard to the dosage: twenty to thirty grains, so often repeated, he has never known to cause regret that it had been administered. The dose of bicarbonate of sodium is stated to be from ten to sixty grains, while some of the other preparations of soda may be taken in very much larger quantities—notably Glauber's salt, which is often given in from half-ounce to ounce doses.

RECENT CONTRIBUTIONS TO RENAL SURGERY.

Editorially the *Boston Medical and Surgical Journal* of January 16, 1896, deals with this topic. It is remarked that the conservative surgery of the kidney is a subject which has of late begun to attract an attention in the surgical world proportionate to its importance.

Fenger recently called the attention of the Philadelphia Academy of Medicine to the advantages of lumbar incision in hydronephrosis, and subsequent operation for the removal of the valve-formation in the ureter which had caused the hydronephrosis. By this means the lumbar fistula was made to heal, and complete cure attained. He also reported a successful operation for valve-formation between the sacs of a sacculated kidney: by division of the walls between the sacs, a single sac was produced, communicating freely with the pelvis of the kidney. He also reported a case illustrative of the value of resection of the diseased portion of a kidney, instead of nephrectomy, in a case of tuberculosis limited to the lower third.

Our statistics with regard to renal surgery have been recently enriched by Hildebrand, who, in a recent number of the *Deutsche Zeitschrift für Chirurgie*, gives the result of operations practiced for divers affections of the kidneys at König's clinic at Göttingen.

Thirteen cases are reported of nephrectomy for tumors—7 in children of from one to seven years of age, and 6 in adults past the age of forty years. Of the seven children, none had hematuria, and apart from some emaciation all were in excellent condition. It all these seven cases the tumor occupied the right kidney. No diagnosis had been previously made of the histological form of the tumor. Ablation was made through the peritoneum—that is, by the abdominal method—and was performed in most cases without a great deal of difficulty.

In one case the tumor had invaded the large blood-vessels, and in another the mesenteric glands, and the removal was consequently incomplete. In one case the laparotomy revealed a soft sarcoma; a severe hemorrhage necessitated tamponment of the cavity. Only one of these children succumbed to the operation; all the rest, after three or four weeks, left the hospital well. Five of the tumors were sarcomata, the sixth a congenital cyst complicated with sarcoma, and the last a carcinoma. The six patients who survived the operation afterwards succumbed to a return of the disease or to metastases (in from two and a half months to a year).

The six adult patients had all suffered from hematuria for several months or several years before the operation. No exact diagnosis was made of the nature of the renal tumor. Extirpation was effected in all the cases but one by the lumbar way. In several subjects the operation was very difficult by reason of adhesions and hemorrhage: in three cases the tumor adhered to the liver, and in another to the vena cava. In one of the subjects the operation was abandoned on account of both kidneys being found affected with cystic degeneration. Of the tumors removed, three were found to be angeio-sarcomata, one sarcoma, and one carcinoma. Two patients succumbed a short time after the operation. The patient with cystic degeneration of both kidneys died of uremia in five days; of

the three others, two succumbed at the end of several months, and one only, a woman, from whom an angeio-sarcoma was taken, remained in perfect health at the end of twenty months.

The results of these operations thus proved to be as bad for the adults as for the children. Evidently the extirpation of the kidney in cases of malignant tumor has little chance of success unless practiced early, as soon as the diagnosis can be made with sufficient certainty.

A case of fibro-myo-osteo-sarcoma of the capsule of the right kidney is reported; the patient was a man aged thirty years. The tumor, which had been mistaken for a floating kidney, filled the whole right side of the abdomen; it was soft in places, with adjoining parts hard. There was no hematuria. This morbid growth was easily removed by median laparotomy. The tumor had developed between the intact kidney and the supra-renal capsule. The patient got well in six weeks; he was seen a year afterwards and was in good health.

There is a very interesting case of a perinephritic blood cyst in a girl nineteen years of age. The cyst could easily be felt under the left lower ribs as a firm elastic globular tumor. There was no hematuria, and it was impossible to decide whether the tumor was connected with the kidney or with the spleen. It was brought to view by a retro-peritoneal section, and proved to be an enormous sac, from which a liter and a half of fluid blood was evacuated, with some clots. The internal wall had the aspect of a mucous surface; the cyst had developed outside the intact kidney. The margins of the opening were sutured to the external wound. The patient, who had previously been in a miserable state of health and bed-ridden, got well in a little less than three months. Histological examination proved the cyst to be a simple hematoma; the internal wall of the sac had no epithelial lining. This hematoma was supposed to be the consequence of the rupture of an aneurism. The patient was perfectly well at the end of twenty-seven months.

There was one case of echinococcus of the left kidney which had been diagnosticated as sarcoma, in a little girl of five years. The child succumbed the day after the operation.

There were four cases of hydronephrosis and eight of pyonephrosis treated either by incision or nephrectomy; two deaths.

In three cases of tuberculosis of the kidney with concomitant vesical catarrh, extirpation of the diseased kidney was followed by complete recovery. The patients were all in good health several years after the operation. These were regarded as cases of primary tuberculosis of the kidney.

In two other cases there was tuberculosis of the kidney and extensive tuberculosis of the bladder; here the renal disease was supposed to have originated in and extended from the bladder; the patients succumbed during or shortly after the operation. It is observed that renal tuberculosis may long remain latent, while tuberculosis of the bladder soon manifests itself by the symptoms of cystitis. When there is concomitant renal and vesical tuberculosis it is not always easy to tell in which organ the disease occurred primarily. According to König, renal tuberculosis is in many cases of arterial origin and not consecutive to a tuberculous affection of the bladder or of the male genital organs.

Of eight patients on whom nephrectomy was performed for tuberculosis of the kidney, four got well, and have remained well for several years. The four that died lived a variable time, from twenty-four hours to six weeks; on three of these an autopsy was obtained, and in one the other kidney was found to be absolutely free from tuberculosis. These facts, as well as those of Tuffier and Steinthal, prove the frequency of unilaterality of the lesions, and fully justify surgical interference in renal tuberculosis.

Nephropexy for mobile kidney was practiced in twelve cases (eleven being on the right side); no death. The operation was successful in all the cases but one, a young hysterical female, in whom laparotomy practiced subsequently for other reasons showed that the kidney remained fixed in its normal place. Of the eleven other patients, six were cured completely and permanently. The fixation of the kidney is made by means of four sutures, two being of silk and two of catgut. The threads are passed in deeply through the renal substances, with a distance of three or four centimeters between the points of entrance and the exit.

A NOTE ON THE USE OF PERMANGANATE OF POTASSIUM IN DISEASES OF THE SKIN.

The *New York Medical Journal* of February 8, 1896, tells us that Dr. L. Duncan Bulkley, of New York, states that he first learned from a patient the value of permanganate of potassium as a remedy for itching in various

skin diseases. The mode of using it was to paint over the affected surface a one- or two-per-cent. solution of the salt, and allow it to dry. Sometimes it was advisable to follow this with a lotion of calamine and zinc. The permanganate, of course, left a brown stain, and by its oxidizing action reduced thickened patches of skin.

CURE OF A CASE OF TETANY AFTER TREATMENT WITH THYROID EXTRACT.

Both myxedema and tetany are sometimes observed to follow extirpation of the thyroid. Nevertheless, the greater number of cases of tetany show no corresponding thyroid lesion. The nature of this form of spasm is so obscure, and the remedies employed against it accomplish so little, that it seems justifiable to follow any indication which points to a new way of help. This is the reasoning of Dr. Max Levy-Dorn, in the *Therapeutische Monatshefte*, February, 1896.

Gottstein was the first one to try the treatment for myxedema in tetany. The patient had had the disease already twenty years, and the thyroid was deficient. Symptoms of myxedema were wanting, however; the blood-cells, instead of being swollen, were strikingly small and shriveled. Twice a healthy thyroid gland was implanted in the belly cavity, but the efforts failed, although transient improvement occurred as the result of absorption of the gland. Then thyroidin was administered. The number and violence of the attacks diminished markedly, long absent sleep at night returned, and the woman increased so much in strength and quiet that she could resume her housekeeping. Also she lost Trousseau's and Chvostek's phenomenon, namely, the possibility by pressure in the neighborhood of nerve-trunks of exciting an attack, as well as the increase of the mechanical excitability. A complete cure, however, did not result up to the time of publication, which was after four and a half months' treatment.

Levi-Dorn, however, says he has treated one of Professor Oppenheim's patients with thyroidin and obtained a lasting cure. The case is especially interesting because not only were all symptoms of myxedema absent, but the thyroid gland appeared to be perfectly healthy.

The patient was a tailoress, twenty-one years old. Three years before she came under observation she had sought to relieve herself of sweating fingers by cold hand-baths. Since then she has had at times spasms in both hands—the fingers would become so tightly clenched that they could not be loosened by the free hand; after a few days the hands would recover their natural flexibility.

July 7, 1894, the spasms occurred in connection with the premature birth of a boy. The child died at 6½ months, of convulsions. The spasms had the old form, continuing only a few days, always limited to the upper extremities. Then there set in frequently a feeling of itching in all the limbs. The patient experienced great wearinesss, drowsiness, increasing heat, and anxiety. The weariness was greatest on rising in the morning. A tendency to profuse perspiration was of long standing. The disturbances increased.

The patient's father had worked for twenty-five years in metals, especially lead and mercury, but showed no sign of poisoning. The mother died of tuberculosis of the lungs. Five brothers and sisters died at an early age, from scrofula or weakness, or both (four of them were twins). As to the patient herself, she presented all the symptoms which belong to tetany. Pressure upon the internal bicipital sulcus caused paresthesiæ in the affected arm, followed by the typical position. The fingers were held in position for holding a pen, or clasped into a fist with the thumbs turned in. The mechanical excitability of the nerves was much increased. [The author here continues to give a detailed account of the symptomatology, with the reactions to electric currents, which leave no doubt of the case being one of tetany.] The disease seems to have been started by the chilling of the hands and to have been aggravated by the premature labor. No association with any infectious disease or poisoning or stomach disease could be established, nor could any disease of the thyroid be discovered.

Tablets of thyroidin were now given, one tablet daily, and rapid improvement followed after three days. The spasms ceased after the sixth dose, to return temporarily fourteen days later, after menstruation. Apart from this the patient has remained completely cured of her tetany. Her general condition has decidedly improved, so that she can work again. Altogether not more than seventeen tablets were taken. Health has persisted four and a half months without medication. Each tablet contained three-fifths of a grain of thyroidin.

THE TREATMENT OF SEVERE SPASMODIC TORTICOLLIS.

In the *Boston Medical and Surgical Journal* of February 27, 1896, COGGESHALL concludes a paper on this topic by expressing the following opinions:

First, that no very good reason can be given why the operation of neurectomy should be performed.

Second, that the neurologists generally have not given a trial to massage, gymnastics, and suggestion, sufficiently prolonged, or carried out with sufficient attention to detail, to warrant them in expressing a positive adverse opinion.

Third, that his own experience with these methods of treatment has been sufficiently satisfactory, as far as it has yet gone, to justify him in pursuing the same methods in the future until further experience shows that they fail when carefully tried.

Fourth—and of this he speaks with much more certainty that he is right—no proper trial of massage has been made if it has not been combined with medical gymnastics, and if the operator has not been chosen with the same care that would be employed in selecting a surgeon, and with a care which extends even beyond the consideration of technical skill in massage and gymnastics, to the question of fitness as to general intelligence, force of character, and natural or acquired tact to exercise the proper influence upon the patient.

ON THE USE OF THYROID EXTRACTS IN MENTAL DISEASE, WITH REPORT OF CASES.

In the New York *State Hospitals' Bulletin* for January, 1896, BABCOCK records the results reached by him in the St. Lawrence State Hospital for the Insane. The experiments with thyroid were taken up with three main objects in view: first, to definitely ascertain its physiological action; second, to determine thereby in just what classes of cases it might best be used to promote recovery; third, to apply it therapeutically.

Extracts made from the thyroid gland have a definite physiological action; an unvarying strength of any given amount can be obtained by proper preparation; and the true thyroid preparations have no relationship with the so-called animal extracts which have achieved so much unfavorable notoriety of late.

The preparation used in the hospital was the desiccated thyroid extract (Parke, Davis & Co.), ten grains of which equal an average fresh gland of the sheep, one grain equaling 6¼ grains of fresh gland. The preparation when freshly made was found to be of uniform strength, fairly agreeable to take, and free from disagreeable effects in moderate doses.

The dosage and method of administration varied according to the personal idiosyncrasies of the patient. In most cases five grains was the initial dose and was given in capsules. The action of this dose was closely watched for a few days; then it was gradually increased, unless the symptoms contra-indicated its further use. With the exception of two cases, little or no reaction was obtained from five grains, and the dose was increased to ten grains. Nearly all cases reacted more or less quickly to this dose, and in many the physiological limit seemed to be attained. In a smaller number of cases the reaction to ten grains was milder, and fifteen grains were soon given. This seemed to be the maximum dose that could be given with safety for any length of time, and then only to patients whose physical health was impaired only slightly if at all. A few of the patients, notably cases of melancholia with delusions of persecution, refused to take the extract either in capsule or powder; it was then disguised by mixing with some regular article of diet, and regularity of administration was thus obtained.

The results of treatment in the thirteen cases are, briefly, as follows: Two recovered —a case each of melancholia and mania; seven improved, of whom two will probably recover—five cases of melancholia and two of mania; four cases underwent no change—two cases each of mania and melancholia, all of whom were undoubtedly demented, to some extent, when treatment was inaugurated.

While the mental improvement, in suitable cases, dates from the first rise of temperature, the greatest improvement accompanies the gradual subsidence by lysis of the febrile reaction. As a general rule, the higher the temperature during treatment the greater the mental reaction following its fall, and the more marked the convalescence thereby established. When temperature subsides and continues normal for forty-eight hours, the thyroid should be stopped and general therapeutic measures substituted. Much harm may be done if treatment is prolonged beyond this stage. Hydrotherapy, static electricity, and massage will now be indicated in most cases and found useful to promote convalescence.

The rapid loss of weight ceases with the

last dose of thyroid, and during convalescence the assimilative and nutritive processes, highly stimulated but held in abeyance during active treatment, rapidly rebuild the wasted tissues. The voracious appetite, improved color, and rapid gain in weight, all betoken great activity of cell-nutrition, and in most cases are accompanied by an improved mental condition.

The gain in body-weight following thyroid treatment is very rapid. Within two weeks after the administration of the last dose, most cases gained anywhere from 6 to 20 lbs. During course of treatment in one case thyroid was stopped for five days and patient gained 13 lbs.

The result of this study shows that cases of post-melancholic hebetude following a lengthy period of depression offer the best prospect of improvement, and are more or less influenced in the majority of instances.

Cases of stuporous melancholia of long duration are usually improved by thyroid, though the cases which recover appear to have a special predilection to relapse.

Maniacal cases whose attacks have been unduly prolonged give a very encouraging prognosis. The first recovery in this series occurred in a case of recurrent mania (1841) whose attacks (second) had been unduly prolonged. Recoveries in this class hold no greater prospect of permanency than recoveries without special aid. The attack has simply been cut short by the thyroid, and, other things being equal, a recurrence is more than probable.

Cases of cerebral exhaustion following acute delirium or stupor, whose elimination of urea and other nitrogenous compounds is greatly reduced, offer a fair chance of improvement. While the majority of these cases would probably recover without the aid of thyroid, their residence in the hospital can be cut short in many instances by its judicious use.

Many cases of chronic mania without fixed delusions may be benefited by a course of thyroid treatment. In suitable cases their maniacal outbursts may be lessened in intensity, a greater degree of self-control may be obtained, and their condition rendered more comfortable in many respects, without injury to their physical health.

In doubtful cases thyroid may assist in clearing up the diagnosis. It will early differentiate between true stupor and dementia. In delusional cases of a doubtful nature a course of treatment will usually show whether delusions are fixed or temporary, as the latter will vary in character or entirely disappear during treatment, while the former undergo no change whatever.

The subject of thyroid-feeding in insanity has received such able treatment at the hands of Dr. Lewis C. Bruce, of the Royal Edinburgh Asylum, and Dr. C. K. Clarke, Superintendent of the Rockwood Hospital, Kingston, that little remains to be done in the direction of reporting the physiological effects of this method of treatment, however much our knowledge of its therapeutic value may require to be extended. With these introductory remarks, the medical staff of the WILLARD STATE HOSPITAL of New York make the following report on the early effects of thyroid-feeding in insanity:

The treatment herein referred to consisted in the administration, first, of thyreoidin (Parke, Davis & Co.) in tablet form, each tablet containing one-half grain of the product, which was represented to be equivalent to five grains of the gland; and, later, of desiccated thyroid, sold by the same firm.

The cost of thyreoidin in tablets is considerably greater than that of the desiccated gland, and apparently it possesses no advantages over the latter. The patients, twelve men and ten women, were all cases which were not progressing toward recovery, but among them were a number who were considered not entirely hopeless, provided the proper impetus could be supplied to start them on the road to mental health—cases of commencing dementia following acute insanity, of hebetude and depression constituting chronic melancholia, and of stupor with controlling delusions. Two of the men were suffering from general paresis, having a syphilitic history; several of the women were old cases of puerperal insanity, which had not done well; while some of both sexes were confirmed dements, in whom, as in the cases of general paresis, no curative effect was anticipated. One, a terminal dement, was included in order that the effect of the treatment upon a chronic skin affection (psoriasis) might be observed.

All were given a thorough physical examination to begin with, including analysis of the urine, and none were passed for treatment who were found to be suffering from any serious organic disease.

They were weighed before being put to bed, and for several days before the administration of the remedy a record was made of

the temperature, pulse, and respiration in each case.

Commencing with one tablet of thyreoidin thrice daily, the dose was rapidly increased to eight t. i. d., and this dosage maintained for from four to six days. Treatment was then discontinued for one week, owing to the supply of the drug being exhausted, after which they were given desiccated thyroid, at first eight grains t. i. d., increased after two days to twelve and then to sixteen grains after each meal.

Viewing the cases *en masse*, the following bodily symptoms were noted:

The pulse-rate was accelerated in the majority of cases, though in only a small number did it exceed 100 and in but three reach 120. There was diminution of arterial tension as a very constant feature, while irregularity and intermittence were noted in several of the patients.

Slight increase in the respiratory rate was observed.

In only two cases did the temperature fail to rise above the normal point, but in none was there any marked elevation, while a number of the patients had subnormal temperature, even during the period when the physiological action of the medicine was most obvious; so that, on the whole, lowering of the temperature was noted as frequently and to as great a degree as elevation.

Flushing of the skin, with more or less injection of conjunctiva, occurred in practically every case, and this condition was, as might be expected, coincident with softening of the pulse and increase in the amount of perspiration.

A fair appetite was preserved during the first week of treatment, after which there was a lessened desire for food, and in a few instances nausea and vomiting were induced.

The tongue was lightly, and in some cases heavily, coated, and most of the patients were constipated. In only one was diarrhea noted during the treatment, and this was regarded as an accidental complication.

Headache was frequently complained of concurrently with the flushing of the face and other signs of more active circulation.

Loss of weight was the most noticeable of the results obtained. In one case it amounted to 20 lbs., and in five others the decrease was from 12 to 15 lbs. Some, however, lost only a few pounds, while one patient actually gained 2 lbs., and another weighed exactly the same at the end of the treatment as when it was commenced.

Tremor and muscular twitchings were noted in five cases, occurring in the extremities as well as in the tongue and facial muscles, and some of the patients who had no actual twitching of the muscles were observed to be quick and jerky in their movements.

Amorphous urates were present in the urine of a few patients who had exhibited marked febrile reaction, but further than this nothing noteworthy was elicited by the examination of this secretion.

Some of the patients were left in a markedly debilitated state by the treatment; several required stimulation with wine or whiskey and heart tonics; and one exhibited such pronounced weakness of the heart's action that the medicine had to be discontinued after a trial of one week.

In at least one case, which was previously most discouraging, there seems to be a fair prospect of recovery, and others are improved, though their cases are not so definitely hopeful.

BONE-GRAFTING EXTRAORDINARY.

Nothing is wasted in nature, according to the proverb, and Mr. Waterhouse emphasized this fact in a case which he brought before the Medical Society of London. Having found it necessary to scoop out the body of the os calcis for the removal of tuberculous disease, a foot was left in which this important bone was represented only by a yawning cavity, bounded by a thin shell of compact bone. The outer wall of the cavity was wanting, and the floor was badly damaged. This resourceful surgeon thereupon requisitioned the collar-bone of a lamb (part of a shoulder of lamb which has been served for the dinner of the resident medical officers of the hospital). He decalcified the bone by steeping it in hydrochloric acid, freed it from fat by washing it in ether, and then sterilized it by immersing it in solution of carbolic acid of suitable strength. The bone, having been converted into chips, was made into a paste with iodoform and packed carefully and tightly into the gaping cavity, over which the skin was securely sutured, and the foot was then put up in an antiseptic dressing. It was not dressed again for a fortnight or so, and by that time healing was complete, and has so remained ever since.

We gather that this is the seventh or eighth case in which Mr. Waterhouse has employed this procedure with the same measure of success, and on this ground the method com-

mends itself for general adoption in this class of cases. We have seen a finger grafted onto or into a nose, and a chicken-bone used to patch up this or that small bone, but the utilization of a lamb's collar-bone to build up an absent heel is as interesting, and even as extraordinary, as either.—*Medical Press and Circular*, Feb. 12, 1896.

THE TREATMENT OF WEAK FOOT.

WHITMAN (*New York Medical Journal*, Nov. 16, 1895) describes and illustrates a very ingenious brace, for full understanding of which the original article should be consulted. The author concludes as follows:

The principles of the treatment which leads to the permanent cure of the weak foot and flat foot are very simple, but their application varies somewhat according to the grade and duration of the deformity. The object of treatment is to change the weak foot, not only in contour but in habitual attitudes and in power of voluntary motion, to those of the normal foot, because a cure is impossible until function is regained. The first step must therefore be to make passive motion free and painless to the normal limit, for the obstructions to the motion of the machine must be removed before the power can be properly applied. The increase of muscular strength and ability on which ultimate cure depends is not possible while motion is restrained by deformity or pain or by adhesions or contractions.

The weak foot, because of inefficient ligaments and muscles unable to hold itself in proper position, must in many instances be supported until regenerative changes have taken place in its structure. Such support is necessary to retain the joint in proper position, to hold the weight in its proper relation to the heel and the strain in its normal relation to the foot.

When these essentials are provided, the patient may cure himself by the proper functional use of the foot and by an avoidance of attitudes that place it at a disadvantage.

It may be well to describe, first, the treatment that must be applied to all classes of weak foot in which a cure is to be attempted, and which by itself is sufficient in the milder types, before calling attention to the modifications that may be necessary in special cases.

In practically all cases it will be necessary to provide the patient with a proper shoe, for the shoe is usually directly the cause of the minor deformities, and indirectly, in many instances, of more serious disability. The shoe should contain sufficient space for the independent movements of the toes. This motion is illustrated in the walk of the barefoot child. As the weight falls on the foot the toes expand, and as the body is raised on the foot they contract.

A very good demonstration of a proper sole may be made as follows: The bottom of a normal foot is smeared with vaselin, and an imprint made on a sheet of white paper. As the weight is borne, the outline of the foot is traced with a pencil; the imprint will show the weight-bearing portion of the foot, the outline its actual size. The sole of the shoe should at least be wide enough to support the entire imprint, and ought to be sufficiently wide to include the entire outline of the foot. The ludicrous disproportion between the size, width and shape of the ordinary woman's shoe and the imprint and tracing of the foot is often a very convincing argument in favor of a change.

The prevention of distorted toes and discomfort of the abused foot is a matter of great importance in childhood. It should be insisted that the sole of the shoe be of such shape and width as to allow of independent movement of the toes. Unfortunately, little children are often seen wearing shoes of the shape usually assumed at years of discretion. In this regard girls suffer more than boys, as women do more than men. The girl who may have worn comparatively harmless shoes until the age of ten years or thereabouts changes suddenly to the high heel and narrow sole, and the process of distortion begins, the amount of distortion and the degree of discomfort depending on the amount of work required of the foot. Wide soles and no heels should be worn as long as possible by children for protection from injury and because the high heel limits the necessity for, and therefore the use of, the entire range of motion of the foot and ankle.

A simple expedient in the treatment of the weak foot, and an aid in balancing it properly, is to raise the sole and heel of the shoe slightly on the inner side to simulate the wearing away on the outer side, as in the use of the normal foot. This aids in overcoming the valgus, and is of special importance in the treatment of the weak foot in childhood.

When the patient stands properly balanced in the proper shoe, his attention should be called to the three elements of weakness. He should be instructed to guard against valgus by throwing the weight on the outer

side of the heel; to guard against abduction by keeping the toes almost straight in front of the body; the significance of the bulging on the inner side of the foot should be pointed out to him, that he may prevent this by aiding the arch by the power of the great toe, as already illustrated. The importance of leverage is shown him; he must try to feel the sole of the shoe with his toes, and the active life of the calf muscles by fully extending the leg and raising the body on the foot from time to time. He must avoid long continuance in one position, especially the passive posture, which simulates the attitude and deformity of flat foot. In short, he is instructed in the mechanics of the foot and its voluntary protection.

Although the proper walk is the best of exercises, it is important to show the patient the normal range of motion in all directions and let him endeavor to reach it by voluntary exercises. Raising the body on the toes, first on both feet, finally on one foot, for from twenty to one hundred times, is a very good exercise for the foot and for the calf. In many instances this very simple treatment is all that is necessary, and the symptoms of strain and tire completely disappear; but in cases of more severity the patient is not able to prevent deformity voluntarily, consequently a support is necessary to hold the foot in proper position and to relieve discomfort. Support is usually necessary in the weak and flat foot of childhood, because one cannot command the self-help of the patient.

In applying a support to the weak foot, the nature of the deformity that is to be prevented must be borne in mind: that the flat foot, for example, is not a direct breaking-down of the arch, as is usually taught, but a lateral deviation and sinking—a compound deformity, as has been already described—so that a brace, to be efficient, must hold the foot laterally as well as support the arch; at the same time it should not prevent the normal motions of the foot and thus interfere with the increase of muscular strength and ability, on which ultimate cure depends. The supports that have been ordinarily used for flat foot do not fulfill the conditions; the pads and springs placed beneath the arch are intended to support it by direct pressure, without regard to the valgus or the abduction; they are usually ill-fitting and often of such length and shape as to splint the foot and thus prevent its motion. Leg-braces which control the valgus do not often accurately hold the foot, and their weight and unsightliness are fatal objections to their use in the early cases, in which prevention of subsequent deformity is of such importance. No brace should be applied to a deformed and rigid foot, because it is unable to shape itself to the support; the spasm and rigidity must be first relieved by preliminary treatment, as will presently be described.

The brace, cut of the best sheet steel, 18 to 20 gauge, is moulded upon it and tempered, so that as it is applied for the purpose of preventing deformity it may be practically unyielding to the weight of the body.

In the treatment of children, the passive movements of the foot should be carried out to the full limit at morning and night, until the child has regained the ability to perform them voluntarily. Special gymnastics and massage are of service and may be necessary in certain cases. Bicycling may be cited as one of the best, and roller-skating as one of the worst, exercises for the weak foot. A year is about the time required for a cure of the weak foot in childhood, although attention to the shoes and the attitudes must be kept up indefinitely.

One may now contrast with the mild types of weakness that have been described, those cases of extreme deformity in which the symptoms are disabling and the foot is rigidly held in the deformed position by muscular spasm. Such cases, often considered hopeless as regards care, or even relief, are in reality the most satisfactory, and in no other type of painful deformity can so much be accomplished by rational treatment.

The deformity must be considered as a dislocation, in which the astragalus has slipped downward and inward from off the os calcis, which in turn is tipped downward and inward and into a position of valgus. The remainder of the foot is turned outward, so that the relation of the leg to the forefoot is entirely changed; in fact, the forefoot is almost entirely disused. With the deformity one finds, it may be, local periostitis, new facets in the bones, active and passive congestion, and the like.

The amount of permanent change in the bones in the sense of irremediable deformity has been greatly exaggerated by the few post-mortem examinations that have been recorded, for by far the greater number of patients are young adults in whom the extreme deformity is of comparatively short duration and in whom complete cure is possible.

The problem in treatment, therefore, is

first to replace the dislocation and to remove all the obstructions to free passive motion, to rest the injured and congested tissues, and to relieve the sufferer from the continuous and debilitating pain. The patient is etherized, and, the muscular spasm being completely relaxed, one may estimate the amount of restriction of the range of motion. Of this, muscular spasm makes about half; the aim now is to remove this residual obstruction to motion in every direction, and finally to place the foot in the attitude most opposed to that which has been habitual. This is the object of forcible overcorrection as the first step in the systematic repair of the disabled mechanism; its principle must not be confounded with forcible correction carried out with the object of remoulding the arch of the foot or in which the simple correction of the deformity is the object in view.

One first extends the foot forcibly, then flexes it to the normal limit, then abducts and adducts, the various motions being carried out over and over again until the rigid foot has become perfectly flexible; it is often necessary to allow the patient's leg to hang over the table so that the foot may be taken between the knees, in order to supply the required force by the thigh muscles. These motions are accompanied by the audible breaking of adhesions and the complete disappearance of the deformity.

In a limited number of cases it will be necessary to divide the tendo Achillis—when, for example, the range of dorsal flexion remains limited in spite of repeated stretching, or where there has been very great pain and tenderness at the medio-tarsal joint, and it is desired to remove the strain of the calf muscle completely. Traumatic cases come especially under this head. This tenotomy has one great advantage, that it lengthens the course of treatment and gives the patient the benefit of a longer rest and opportunity for after-treatment. When the passive range of motion has been regained, the foot is turned downward, then inward and upward into the position of extreme equino-varus, an exaggeration of the attitude of adduction. By this manipulation the os calcis is drawn under the astragalus and thrown into an everted position, and the scaphoid is flexed about and under the head of the astragalus, which is then lifted to the limit of normal flexion. The attempt is always made to bring the extreme outer border of the inverted foot up to a right-angle with the leg, which is the limit of normal forced flexion in this attitude. The foot, thickly padded with absorbent cotton, is then fixed in this club-foot position by plaster-of-paris bandages.

Surprisingly little discomfort, considering the force that it is sometimes necessary to apply, is experienced after the operation. The familiar and often intense pain from which the patient has suffered so long is entirely relieved by the correction of the deformity; there is often a sense of tension about the outer side of the ankle and dorsum of the foot, but this is not as a rule of long duration. As soon as possible, often on the following day, the patient is encouraged to stand and walk, bearing his weight on the foot. Walking serves two purposes—to still further over-correct the deformity, and to accustom the patient to a posture entirely different from that so long assumed.

Meanwhile the contracted tissues on the outer side become thoroughly overstretched, the weakened ligaments and muscles on the inner side are allowed to contract, and the local irritation rapidly subsides under the rest from the constant injury to which the foot has been subjected.

The patient is not confined to the bed or house; if both feet are in plaster bandages, crutches are of course necessary. The time that the feet should remain in the over-corrected position depends upon the duration of the deformity and the severity of the symptoms; that is, from one to six weeks, the usual time being about three weeks.

At the end of two weeks, or whenever the patient can support his weight on the plaster bandage without a sensation of discomfort, it is removed, the foot placed in the proper position, and a cast taken for the brace. Immediately after this is done, the foot is returned to the club-foot position and the plaster bandage reapplied. When the brace is ready the plaster bandage is finally removed; the foot is now in good position, and in many instances the arch is exaggerated in depth.

For the first few days, prolonged soaking in hot water, with subsequent massage at intervals during the day, will be found useful in overcoming the swelling and local tenderness that may remain. It is always insisted that a new shoe of the Waukenphast pattern shall be obtained, the sole and heel of which are raised a quarter of an inch on the inner side to aid in the balancing of the weak foot; the brace is then applied, and the patient is never allowed to walk without its support. When the shoe is removed he is instructed to walk on the outer side of the foot or the toes until

the foot again becomes strong; in other words, the deformity is never allowed to recur.

The systematic treatment is then begun by the surgeon and patient, the first essential being the attainment of free and painless passive motion in all directions. These motions, which have been so long restrained by deformity, cannot be regained without effort, and during this stage the treatment must be carried out by the surgeon himself; if he trusts to the patient or his friends, a cure is out of the question. A least once a day the full range of motion must be carried out to the normal limit.

Three motions—abduction, flexion, and extension—are usually free and painless; but the fourth, that of adduction, is almost invariably resisted by the same quality of muscular rigidity that was present before the operation. By far the most effective method of overcoming this resistance is conducted as follows: The patient is seated in a chair, and the surgeon stands in front of him. Let us suppose that the left foot is to be adducted—or, as the patients express it, twisted. The surgeon places the foot between his knees; his left hand encircles the heel, the fingers grasping the projecting os calcis and tendo Achillis; the ball of the palm lies against the medio-tarsal joint on the inner aspect of the foot; the right hand grasps the outer side of the forefoot and toes; then, by steady pressure of the thigh muscles, the forefoot is forced downward and inward over the fulcrum formed by the projecting palm which lies upon the left knee, the fingers holding the heel steadily in place. This inward twisting is at first resisted by a mixed voluntary and involuntary muscular spasm, which gradually gives way under steady pressure. When the limit of adduction has been reached, the foot is firmly held until all pain has subsided, when the patient is instructed to make voluntary movements while the foot is in the corrected position—flexion and extension of the toes, and to contract the flexor muscles of the foot. Finally he attempts to adduct the foot, the surgeon supplying the power, which in all cases of this type has been completely lost.

This passive manipulation to the extreme limit of normal adduction is necessary until there is no longer any sensation of pain or tension, for as long as there is the slightest spasm or painful restriction, so long is the voluntary motion limited, cure delayed, and relapse of deformity probable.

During active treatment the patient, by the use of massage, active and passive motion, is constantly working to one end—namely, to regain the lost power of voluntary adduction.

The time necessary to rest the feet, to overcome the local inflammation and muscular spasm, and to regain, in part at least, the range of passive motion, to place the patient in the same position as regards a cure as that of the milder type of deformity, is from three to six weeks.

Usually the patients are told that a month will be necessary and that at the end of that time they may return to work, free from pain and from the danger of relapse, and that the feet will constantly grow stronger under the work which was before too great for their strength. The time necessary to re-educate the adductor muscles in their proper function depends in great degree upon the intelligence and persistence of the patient. Although in after-treatment massage and special exercises are of benefit, the essentials are very simple: an effective brace, a proper shoe, and the passive manipulation which has been described, until its object has been attained; the proper walk, the best and easiest of exercises; and lastly, to force into the patient's understanding the method of protecting the weak foot by the alternation of strain and by proper postures.

The author gives a brief analysis of 1000 cases of so-called flat foot. In fifty eight cases the cause of the disability appeared to be injury, and in sixty-five it was apparently due to rheumatism or rheumatoid arthritis. The symptoms usually appeared first in one foot, and, as a rule, were at all times more marked on one side.

In 569 instances the duration of symptoms was recorded, being six months or less in 409.

The age of the patients is of interest as bearing on the question of prognosis: 426 were between ten and twenty years of age, and 780 were less than thirty.

The philosophy of this theory of the cause and cure of the weak foot may be again briefly outlined:

The normal foot may be made to assume an attitude resembling that of the so-called flat foot.

The deformity of flat foot is a permanent exaggeration of a normal attitude; it follows, then, that the habitual assumption of the simulating posture predisposes to deformity.

This passive attitude that simulates deformity may be simply the result of habit, but, on the other hand, it must be assumed

if the mechanism is weak or overburdened, or if leverage causes pain, or if normal motion is in any way restricted.

Weakness may be prevented by guarding the foot from injury and improper use. Deformity may be cured by the removal of obstructions to normal use, by protecting the foot during the period of weakness, and by restoring the normal balance between the work to be performed and the ability of the mechanism.

THE TREATMENT OF SENILE DYSURIA BY BILATERAL LIGATURE AND DIVISION OF THE VASA DEFERENTIA.

ISNARDI (*Therap. Woch.*, No. 21, 1896) in 1894 first performed the operation of bilateral ligature and exsection on the vasa deferentia to relieve the suffering of a patient complaining of retention of urine. The same year another patient was thus operated upon, and both recovered completely. Since this period he has performed the same operation in twelve other cases.

The first one, a man of sixty-eight, suffered from dysuria for three years, and for a long time with incontinence. Testicles were of normal size; prostate enlarged to the size of a small apple; bladder distended. The operation was performed on the 25th of June. Six days later the trickling of urine entirely ceased, the contents of the bladder being evacuated voluntarily every hour. Distention had disappeared. About two weeks later he could hold his water for four hours, the stream being delivered with some force; the prostate was markedly atrophied. On the 17th of September the patient died of marasmus. At that time he was passing his water normally. The bladder was trabeculated and showed the remains of earlier submucous bleedings. The prostate was small, especially on the left side. Both testicles were atrophied.

The second patient, aged seventy-one, suffered from dysuria for eight years. There were false passages in the urethra from the very frequent use of catheters. He was straining and passing a few drops of urine every half hour. The bladder could not be emptied. At the time of operation he had been suffering from septic fever for some days. The urine was sour, acid, and not markedly altered. Nine days after operation the patient could urinate spontaneously, and the residual urine was diminished by three-fourths. His fever vanished, catheter was no more required, and ultimately he passed urine three or four times a day normally.

The third patient was sixty nine years old. For several years he had exhibited the symptoms of prostatic hypertrophy. Retention of four days' duration, not relievable by the catheter, had resulted in coma, with a Hippocratic expression. There was a varicocele on the left side, a hydrocele on the right. The right side of the prostate was hypertrophied, the left side atrophied, though the testicle of this side was enlarged. The right vas deferens was divided and ligated. A week after operation the catheter was readily passed. Twenty-three days later the patient died of apoplexy. There was no autopsy.

The fourth patient, aged fifty-five, had suffered for two years from dysuria, and serious nervous reflexes from the bladder and rectum. He had been twice operated on for hemorrhoids, and suddenly lost, after the last operation, the power of evacuating his bladder, being compelled after that time to use the catheter. He had suffered from cystitis, which was cured by instillations of nitrate of silver. He was afflicted with such violent and obstinate tenesmus that he seriously contemplated suicide. Four days after operation he passed a stream such as, according to the testimony of his wife, had not been observed for many years. The pain, however, was not relieved. He was compelled to use the catheter. Because of this he grew hopeless and committed suicide.

The next case was that of a man aged eighty, who had suffered from dysuria for several years, often complicated by complete retention. He used the catheter all of this time, often with difficulty, attacks of bleeding and fever being not uncommon. The day following operation the catheter was dispensed with and all the symptoms disappeared; he was able to hold his water three hours, but suffered from repeated and harassing tenesmus. He regained his health completely, and was able to empty the bladder with only slight burning. The operator hopes for improvement with time.

The sixth patient was sixty-four years old, suffering from serious disease of the heart and kidneys. For some years he had had symptoms of prostatic hypertrophy. Had been suffering for fourteen days from retention of urine. Catheterization was extremely difficult and caused bleeding. The case was further complicated by a false passage and suppurative cystitis. The latter grew worse after the use of permanent catheterization, and

patient developed an adynamic fever. The prostate was as large as a hen's egg. On the day of operation spontaneous micturition was possible, but was attended with some difficulty. Twenty-four hours after operation, acid urine was passed, free from pus. Five days later the patient died of his visceral disease; at this time he was able to urinate spontaneously.

The seventh case was a man seventy years old. Had been suffering from retention for a month or so, catheterizing two or three times a day without improvement. The urine contained pus. Testicles and prostate were small. Two days after operation the patient passed his water twice. The next five days urination was very frequent but the catheter was dispensed with. When he passed from observation, urination was at times frequent though for the most part performed in the normal manner.

The eighth case was a man of sixty-five years, who had suffered from symptoms of prostatic obstruction for many years. For some months past had been tortured day and night with tenesmus recurring every quarter of an hour. The prostate and testicles were of medium size. On the day after operation, micturition was easier and less frequent. Tenesmus completely disappeared and the patient felt generally improved. In two weeks the urine was absolutely normal.

The ninth patient was seventy-six years old. He had been suffering from prostatic hypertrophy for several years, frequently employing the catheter, which had caused epididymitis. The urine was ammoniacal. The passage of an instrument was extraordinarily painful and difficult. The patient was tortured day and night with vesical spasm. General health was poor. On the day of operation he passed voluntarily a large quantity of urine, and his pain disappeared as if by magic. Thirty hours after operation the urine was acid and contained very little pus; next day the pus was again abundant. He passed some urine spontaneously, but had to depend mostly upon the catheter. Examination of the urine showed hippuria as a sequel of nephritis, which ran a fatal course. He died about two weeks after operation.

The tenth case was a man, seventy years old. Had been suffering from complete retention for five years, cystitis for three months requiring the use of a catheter every half-hour. He left his bed three days after the operation, though a month later there was no change in his symptoms. Six weeks from operation the cystitis was cured. The patient used the catheter every three hours. The operation caused no improvement in the case.

The eleventh case was a man eighty-two years old. Had noticed trickling of urine for two years. There was a large hydrocele and prostatic enlargement on the left side. The day after operation the diurnal incontinence vanished. A month after operation the patient died from apoplexy. The last week of his life he had nocturnal or diurnal incontinence.

The twelfth case was eighty-two years old. For many years he had suffered from dysuria, for five months from retention, the bladder being greatly distended. Urine alkaline. General condition favorable. For a month the patient used the catheter twice a day with difficulty, often followed by bleeding. The prostate was enlarged on the right side. The day following the operation the introduction of the catheter was much easier; the second day he emptied the bladder spontaneously several times. Eleven days after the operation the patient died with senile marasmus. Autopsy showed a prostate the size of a hen's egg, and a soft testicle of gray color.

One of the patients, suffering from cancer of the prostate, committed suicide, and one died nine days after operation. Of the remaining eleven, in two the operation was unilateral and in nine bilateral. Eight of the eleven were cured of their dysuria, two were improved, and one was not improved. The results in this series of cases, the author holds, are extraordinarily gratifying. In all instances the ordinary means of relief had been tried in vain. Nothing was done for them in connection with the operation.

Guyon has reported three cases, with improvement in all. In two of these the prostate was made smaller, and in one was unaltered.

Bussachi also operated in three cases by resection, with improvement.

Routier reported five cases of ligature of the vasa deferentia, and spoke in great praise of the procedure.

Chabot operated upon one case in the manner to be presently described, and which was also employed by the author. He was gratified by a permanent cure. Two other cases were reported at the last Surgical Congress in Rome.

The author holds that the object to be attained by the operation is atrophy of the testes. Simple resection will not accomplish this, since the secretion may be poured out

into the connective tissue and thence absorbed. Ligation is no more successful, since the thick walls may prevent entire obliteration of the extremely narrow lumen. In one case, examined post-mortem, it was found that a bristle could be readily passed through the vas deferens at the point of ligature. In another case, in which ligature and division was successful, the operation was repeated; the distal end of the vas was found completely closed, but at the proximal end a bristle passed in freely, showing that here there had not been complete closure. This led the author in other cases, after cutting the canal and tying both stumps, to fasten the end of the lower stump in the angle of the lower wound, allowing it to project about one-fifth of an inch from the skin surface, thus insuring closure in scar-production.

In the first case, which died three months after operation, the testicle was carefully examined. Atrophy was visible microscopically. Often the testicle does not alter so much in size as it does in density. In other cases, coincident with diminution in size, nodules form in the epididymus much like those observed after gonorrhea. These alterations are much more marked in those cases which develop a marked inflammatory process of the whole cord.

The operation is thus performed by the reporter: An incision 1½ inches long is made near the top of the scrotum; the cord exposed; the pampiniform plexus and spermatic artery drawn to one side; the vas deferens laid bare for about 1½ inches of its length, tied in two portions, and cut between the knots. The upper stump is abandoned; the other is secured in the lower corner of the wound, so that it projects for about one-fifth of an inch, and an antiseptic bandage is applied. For the purpose of provoking inflammation of the entire cord, on the third day the entire wound is irritated to its bottom. This is repeated, and a large hard swelling appears, involving all the constituents of the cord. The vas deferens is found enlarged near the testicles, and the epididymus swollen and tender. In one case where, in spite of opening and teasing the wound, there was no inflammatory reaction, the author injected a one-per-cent. solution of nitrate of silver. When cases are complicated by large irreducible hernias, the vas is first found at its origin from the epididymus, is freed above at its more superficial portion, and is treated as already described. When operating alone, it being difficult to isolate the vas, a sharp needle is passed under it and then cut down upon. In the neighborhood of the vas are found many fibres of the sympathetic nerve; these should always be sought for and divided.

Obolensky has observed in animals complete atrophy of the testicle following division of the spermatic nerve just below the external ring. This nerve the author was often unable to find. He states that he is convinced, however, that this form of neurectomy in suitable cases should be attempted and may replace all other methods of operation.

As to the indications for section and ligation of the vasa deferentia, the author holds that it is to be preferred to complete castration, since the mortality is less, though this seems not proved. He states that death never results from the operation described, since narcosis is unnecessary. He holds that when a man is past sixty-five and suffers from prostatism, the passage of a catheter being difficult and painful, and marked tenesmus calling the patient up four and five times in the night, when there is cystitis which resists treatment or which if cured speedily relapses, it is much better to perform this simple operation than to subject the patient to the dangers of castration. And even when patients are willing for castration the operation on the vasa deferentia should first be tried. If this operation fails, the testicles can then be removed.

It is worthy of note that the reporter gives no credit to White, who has suggested this whole line of research.

NATURE AND TREATMENT OF MALIGNANT NEOPLASMS.

CARR (*Medical News*, Jan. 11, 1896), in an interesting contribution on this subject, protests against microscopic examination before operation, believing that the preliminary cutting of the tumor may cause a rapid change or an escape of cells that will infiltrate new tissues and perhaps be the cause of recurrence. There is no doubt that all these tumors should be removed without any cutting into them, without rough handling, pulling, or squeezing. All cases should be examined microscopically after removal, and recorded for future statistics. Could surgeons see microscopically all the small tumors they have thrown away without examination, there would probably be a vastly greater per cent. of malignant growths found among them than is generally supposed. It is also urged that these microscopic examinations be made with great care by a competent man, and that the

entire tumor be examined, for it often happens that tumors present very different appearances in their different parts.

There is little or no difference of opinion as to what should be done for distinctly malignant growths. Thorough removal is the only hope. In neoplasms of the breast the present operation of removing the pectoral muscles and axillary fat and glands is perhaps the best that we can do; but there are two distinctly different ways of performing this operation. The surgeon should begin with the axilla, so as not to force any cancerous material or cells from the axilla into the deeper tissues while manipulating the breast. Cut down to the axillary vessels, and tie all branches passing into the tissue to be removed. Remove the axillary contents in one mass by clean cutting with a sharp knife and without picking or pulling. In this way the axilla can be thoroughly cleaned in less time and with less danger of hemorrhage and of squeezing infecting cells into the tissues that are left. Extend the incision down over the tumor, including all diseased skin and a margin of at least an inch of healthy skin. Turn back the healthy skin on each side so as to expose all tissue to be removed, and then remove it in one piece by clean cutting.

The author cautions against any operation after a well marked cancerous cachexia has appeared or secondary growths have begun in internal organs, unless it be clearly understood by all concerned that it is only for palliative purposes. The undertaking of hopeless operations, as a rule, only brings surgery into discredit, and deters others from undergoing proper operations at the proper time.

THE TREATMENT OF SYPHILIS BY INJECTION OF SYPHILIS ANTITOXIN.

COTTEREL has used, in place of the serum of an immune animal, the serum of an individual who has gone through an attack of syphilis and has thus been rendered immune to subsequent attacks. From eighteen cases so treated, the following conclusions are drawn:

1. In the early stages of syphilis, *i.e.* when there is only a sore and glandular enlargement, injections of this serum cause the sore to heal rapidly; the adenitis in the groin generally becomes intensely marked; the skin and throat symptoms are absent, or only slightly marked.

2. Where the case is not seen until the rash and throat symptoms develop, the skin eruption fades rapidly, much more rapidly as a rule than under mercurial treatment, but the throat symptoms disappear rather slowly.

3. The general health improves.

4. The serum from an individual with well marked secondary syphilis appears to be more active than that obtained from a patient with tertiary symptoms.

The amount to be injected has not yet been accurately determined, but the author has used the serum in doses of one-half to five cubic centimeters.—*Medical Press and Circular.*

COLOTOMY FOR MEMBRANOUS COLITIS.

HALE WHITE and GOLDING BIRD reported before the Clinical Society of London (*La Médecine Moderne*, Jan. 7, 1896) a case of membranous colitis treated by right colotomy and subsequent closure of the wound. The patient, a young man of thirty years, began to have mucous rectal discharges, with constipation, in 1885. These symptoms grew more marked until 1891, when he began to experience violent abdominal pains. The next year the passages were often made up of blood and mucus, and the pain was almost unbearable. This condition continued until 1894, when tubular moulds were discharged. The pain was so severe and constant that he was kept in bed most of the time, and for the relief of obstinate constipation strong purgatives were required. In 1895 his condition was the same. There was marked tenderness over the ascending colon and sigmoid flexure. Dilatation of the lower bowel showed long tubular moulds mixed with blood and feces. Since he had been subjected to every form of treatment for ten years, including prolonged rest and thorough trial of various mineral waters, right colotomy was performed, the gut being secured in the wound on the 10th of May and opened on the 17th. Three days later the colon was irrigated with hot water from the artificial anus to the natural opening, but even during this time membranes had ceased to form. For five weeks all the passages escaped through the artificial anus, without requiring the administration of purgatives. The discharges were of normal fecal matter. At the end of this time, all the symptoms of which the patient previously complained having disappeared, the colotomy wound was closed and peristalsis was arrested by means of opium for a week. Compound liquorice powder was then given; the resulting passage contained neither mucus nor blood. Patient's general condition steadily improved, and on the 24th of July he de-

parted for the country, feeling much better than for many years, and not having had any blood or mucus in his stools from the period of operation.

The authors believe that in grave cases of membranous colitis such treatment is not only legitimate but extremely desirable, since thus the colon may be given absolute rest. It is true of this patient that he has since died, but apparently from causes not connected with the operation.

ADNEY stated he had seen this patient the last two days of his life, and at that time the symptoms were those of acute peritonitis. Rectal examination showed a swelling which he believed was a suppurating lymphatic gland, rupture of which he thought had caused general peritonitis. Patient stated he had not had any return of colitis.

Adney also reported the case of a woman who was suffering from severe dysentery. Left colotomy was performed with the idea of applying nitrate of silver or other suitable agents to the affected portion of the gut. The entire mucous surface was found covered with polypoid growths several inches in length. The patient grew better after operation, and died later from causes not connected with her dysentery.

BELANCE opened the ileum, securing the ends of the gut in the abdominal wound. The lower end he used as a means of applying lavages, which were made several times a day. The patient grew better at first, but died some days later of hypostatic pneumonia. In this case the ulcerated intestine readily absorbed toxic products, but was unable to fulfill any of the functions of normal mucous membrane. Hence nothing was gained by diverting the large intestine from the alimentary canal.

TURNER expressed the hope that this method would be employed in cases of ulcerative colitis.

THE TREATMENT OF SEPSIS BY INTRAVENOUS SERUM INJECTIONS.

BERLIN reported to the Société de Chirurgie the case of a woman who, three days after vaginal hysterectomy, showed such violent symptoms of sepsis that recovery seemed absolutely impossible. The belly was distended and painful, and there was very marked subnormal temperature and frequent vomiting. On the fourth day the patient seemed to be about dying, whereupon Berlin gave an intravenous injection of a little over a pint of artificial blood-serum, and shortly afterward repeated this injection, using not quite two pints. Marked cyanosis and increased gravity of symptoms followed at once, but shortly there was decided improvement and the patient recovered, being completely convalescent the twelfth day of her illness.

SEGOND stated that he had used injections of artificial serum for four years in all major operations, and had been able to save many cases of severe hemorrhage by this means. He also stated that in cases of severe sepsis these injections were potent.

MONOD had also had excellent results from intra-venous injections.

MICHAUX in severe hemorrhage and in cases of peritoneal sepsis had given intravenous injections of about three pints of serum, usually with excellent results. Sometimes immediately after the treatment serous fluid was vomited in large quantities.

TERRIER stated that it made no difference whether the serum was injected intravenously or subcutaneously, and held it was wise to combine such injections with blood-letting.—*Therapeutische Wochenschrift*, No. 21, 1896.

SOME RESULTS OF ANASTOMOSIS WITH THE MURPHY BUTTON.

RICHARDSON (*Boston Medical and Surgical Journal*, Jan. 9, 1896) reports three cases of lateral anastomosis by means of the Murphy button. After briefly discussing the advantages and disadvantages of this button, he states that when the patient's condition justifies a deliberate technique he prefers to dispense with all appliances except a needle and thread. He does not regard the application of Murphy's button as brilliantly successful.

His first case was one of cancerous stricture of the colon at the splenic flexure. The abdomen was opened for the relief of acute obstruction. The cecum was found intensely distended, the sigmoid flexure collapsed. Manual exploration showed an indefinite mass in the region of the splenic flexure of the colon, probably a cancerous stricture of the colon. The patient's condition was so alarming that no radical measure seemed justifiable. The cecum and sigmoid flexure were brought into apposition, and lateral anastomosis made by means of a Murphy button. The moment the cecum was incised for the insertion of one-half the button, there was a burst of gas and liquid feces which flooded the whole field of operation, running among the intestinal coils and into the pelvis.

The two halves of the button were applied so that the joint was not tight. This defect was remedied, after a fashion, by the application of a few sutures. Gauze drainage was employed, and good recovery followed. In two weeks there was a slight fecal discharge through the wound. The bowels began to move immediately and satisfactorily. The patient was up and able to attend to her duties in the course of a few weeks. The button was never found in the feces.

About five months later, symptoms of chronic obstruction developed. The abdomen was opened through the scar of the first incision, and under this the intestines were found firmly and densely adherent, not only to the scar itself, but to each other. The coils being separated sufficiently, exploration of the upper portion of the abdominal cavity and the region of the anastomosis was made. The button could not be felt; nor could the original disease which had been located in the splenic flexure of the colon. The cecum was moderately distended, the sigmoid flexure collapsed. No signs of an anastomosis, and no communication was supposed longer to exist, though the coils through which the anastomosis was made were not separated, and a small communication might have escaped notice. A second anastomosis was made near the site of the first. This time the operation was satisfactory and the joint perfect. Prompt recovery followed. The bowels moved freely and regularly, aided by cascara sagrada. The patient was discharged entirely relieved of her obstructive symptoms in a month. The button never appeared. She remained well for four months, when she was seized again with acute obstruction, causing death.

Autopsy showed both buttons free in the transverse colon. Both anastomoses were still patent. Cause of death was internal strangulation. Constriction of the colon was found at the position of the splenic flexure. This had narrowed the lumen of the tube to less than the size of a lead-pencil. Both anastomoses were abundantly large.

Richardson also reports the case of a man, aged sixty-three years, with cancerous stricture of the pylorus, symptoms dating back nine months. Anastomosis was made between the jejunum and the posterior wall of the stomach, the joint being perfect. The operation lasted about five minutes and was in every way satisfactory. The patient perished with symptoms of peritonitis six days after operation.

At autopsy the ring of gastric mucous membrane, compressed by the button, was necrotic; the gangrenous process had, moreover, extended into the stomach-wall. The gastric contents had escaped and caused a fatal peritonitis.

RECTAL ULCERS AND THE ELECTRO-CAUTERY.

BEACH (*Mathews' Medical Quarterly*, January, 1896), in an interesting article on this subject, states that the rational signs of rectal ulcers are: pain in loins, hips, thighs, and abdomen; morning diarrhea, especially in cases of tubercular ulcer; and not uncommonly nervousness and frequent micturition. It need hardly be mentioned that general emaciation follows in the train of symptoms. The diarrheal discharges contain muco-purulent material, occasionally blood, which appears in the first portion of the stool.

Patients presenting themselves with the ordinary symptoms — diarrhea, pain, etc.— have frequently baffled the skill of the practitioner who relied upon the internal administration of various drugs. But what once puzzled the enthusiastic therapeutist now stands forth in clear light, through his knowledge of pathology and approved methods, so that hope can be offered in the prognosis of many rectal lesions which were formerly hopeless. To arrest molecular death of the part is the first consideration, and cleanliness is above all to be desired. Rest is another factor of prime importance. To rest and cleanliness are added such measures as will restore the part *cito, cuto, et jucunde.* This applies to disease of the sigmoid as well.

The special object of the writer is to present the claims of the electro-cautery as a remedial agent in certain cases of rectal ulcer, and to this end he reports two selected cases.

The first had already been operated on twice by division of the sphincter, but without relief. On examination there was found an anal skin-tag beneath which was a marked irritable ulcer. The speculum was inserted, the cautery applied over the entire surface of the ulcer, and a furrow made over the long axis. Very little pain attended this application, and very slight soreness was felt the following day. Three such applications, made a week apart, resulted in complete recovery.

The second case was one of chronic ulcer of the bowel. The electro-cautery was applied to the ulcer twice a week for a month, then once a week for a month, resulting in cure.

THE RELATION OF PHTHISIS TO FISTULA IN ANO, AND THE RATIONAL TREATMENT OF THE LATTER.

GANT (*Mathews' Medical Quarterly*, January, 1896) holds that there are two varieties of tubercular fistula about the anus—one caused by the local deposit of tubercle bacilli in the rectum; the other non-tubercular but occurring because of the general debility of the patient. The tubercular fistula forms large, irregularly shaped external openings, with distinct cavities beneath. The finger passed into the bowel discovers a large angular opening within an inch and a half of the anus. Often the sinus is so large that the finger can be passed through it and into the bowel.

In patients whose lung trouble is so advanced that death is not far off, it is well to confine operation to simple dilatation of the opening to allow of free discharge and to relieve pain.

On the other hand, operation, preceded by hygienic toning up of the patient's strength, should be performed in all cases where tuberculosis is of a chronic nature. The author holds that chloroform should always be used as an anesthetic. The operation should be performed quickly, and every precaution taken against hemorrhage. Moreover, the sphincter muscle must be incised in but one place—at right-angles to the direction of the muscular fibres. The incision is followed by thorough curetting, trimming off all overhanging edges of diseased skin, and packing with iodoform gauze. In the after-treatment the patient is given as much sunshine and fresh air as possible, being out of bed in two or three days. It is not necessary to move the bowels more than once in three days; indeed, it is distinctly inadvisable to do so.

When patients are unable to stand an anesthetic, or are too feeble to survive the shock of operation, a ligature is serviceable. This does not confine the patient to bed at all. The operation consists in passing into the rectum and out through the anus a medium-sized rubber catheter (or solid piece of india-rubber) which has been threaded upon a probe, and tying here its free ends to prevent their slipping. In time the catheter cuts its way out, as a result of the uniform pressure. The advantages of this operation are: It does away with the knife; it can be done without an anesthetic; it is comparatively painless; it permits of the patient's spending all his time in the fresh air; lastly, there is no bleeding.

TREATMENT OF VULVAR ECZEMA.

LUTAUD (*Journ. de Méd. de Paris*, Jan. 12, 1896) holds that the seborrheic or impetiginous form of eczema is generally observed about the vulva. His general form of treatment is about as follows:

1. Absence of coffee, alcohol, wine, pork, shell-fish, lobsters, fish, ripe game, spices, old cheese, and the encouragement of diuresis by the employment of milk.

2. The employment of laxatives, podophyllin in the obese, rhubarb and senna in the thin.

The following powder is especially serviceable:

℞ Powdered sulphur,
Senna, of each, ʒ v;
Cream of tartar, ʒ iij;
Liquorice powder, ʒ iv;
Sugar, ʒ xxv.

A heaping coffeespoonful immediately before breakfast.

Thermal treatment is to be employed wherever practicable, patient being sent to proper springs, the author preferring Vittel, Contrexéville and Royat for the gouty, Vichy and Vals for those whose joints are especially involved.

When the vulva is irritated, only emollient preparations should be employed—bran-water, marshmallow or chamomile infusion; a little boric acid can be added to the boiled water and serve as a basis for these lotions. Following the lotion a cataplasm of corn starch or potato starch, made with hot boric water and applied cold, is indicated. The author especially recommends little compresses of tarlatan soaked in borated bran-water, to be placed between the lesser lips of the vulva. The dressing ought to be renewed after each urination. During the day borated cotton should be applied to the parts.

As a curative to be applied during the intervals between acute attacks, the following is suggested:

℞ Vaselin, 25 Gm.;
Oxide of zinc,
Starch, of each, 5 Gm.;
Salicylic acid, 5 Gm.

The parts having been previously bathed with borated bran-water and dried with cotton.

When the eczema becomes distinctly seborrheic in type, the following may be used after each urination:

℞ Carbolic acid, 0.25 Gm.;
Balsam of Peru, 2 Gm.;
Oil of sweet almonds, 100 Gm.

In the seborrheic forms the mercurial

preparations are especially serviceable; for instance:

℞ Terpeth mineral, 1 Gm.;
Vaselin, 30 Gm.

It is useful after each application of the ointment, and also after each dressing, to dust the vulva with an inert powder.

Baths should be used with moderation, and should not be too long continued or too hot. The author prefers a prolonged sitz-bath in the morning and evening, employing borated bran-water.

MALIGNANT TUMOR DEVELOPING IN AN ECTOPIC TESTICLE.

VILLAR (*Journ. de Méd. de Bordeaux*, Jan. 12, 1896) reports the case of a man aged twenty-eight, suffering from congenital inguinal ectopia. For two years the retained testicle had been increasing in size, without giving pain at first, though later there were various reflex pains. At the time the patient entered the hospital the tumor was about the size of a turkey's egg, hard, with soft areas, dull on percussion, and non-translucent. Pressure on its lowest portion gave rise to a testicular pain. No adenopathy could be perceived on deep palpation. The tumor could scarcely be a fibroma, since Hugier, Tillaux, Labbe and Remy have shown that parietal fibromata are often placed in the lower abdominal wall and are attached by a pedicle to the anterior superior iliac spine and to the crural arch, and are hence termed peri-pelvic fibromata; they originate and are placed above Poupart's ligament, are nearly always found in women, and are fixed by the muscular contractures of the belly-walls. In this case such fixation could not be established, nor could the pedicle be felt. Tubercular testicle was excluded on the ground that in two years it would attain less size, that there was no sign of tuberculosis elsewhere, and that this disease attacking an ectopic testicle is excessively rare. As to syphilis of the testicle, there could be found, so far as the tumor was concerned, none of the characters of this disease. Lymphadenoma was eliminated because two essential characteristics were lacking, *i.e.* bilaterality and the existence in some other part of the body of some lymphadenomatous nodules.

A CONTRIBUTION TO THE STUDY OF ALBUMINURIA.

REGINALD HARRISON (London *Lancet*, Jan. 4, 1896) calls attention to some points connected with tension of the kidney relative to albuminuria, and its treatment by surgical means. The kidney may be said to be a highly organized gland surrounded by a thin though fibrous capsule, and divided up into departments or sections by barriers of a similar tissue. It is capable of distention to almost any degree by a gradual force acting from within—as, for instance, the retrograde pressure proceeding from strictures which oppose the escape of its secretion,—but from the nature of its structural constituents is incapable of adapting itself to sudden emergencies of this kind.

Is the exudation of albumin from the kidneys the result of structural damage directly occasioned, as might occur as the result of nephritis or renal congestion? And are the degenerative changes subsequently noticed in the chronic forms of these affections consequent upon the damage thus inflicted on the organ? The author quotes Sir T. Grainger Stewart to the effect that "Albuminuria is very often due to changes of an inflammatory character in the epithelium of the tubules and in the stroma of the organ, and in a very large proportion of the cases in which it occurs in practice it is dependent upon this cause." That the changes which take place as a consequence of nephritis by the substitution of a lower for a higher excretory tissue, as we see in the cirrhosed forms of Bright's disease, are due to the damage the organ has received in the active and initial stage of congestion, seems by no means improbable. Sir Thomas Watson, in his Lectures, observed that "the stress or congestion which befalls the kidney in cases of febrile anasarca may set on foot a morbid process that long works silently and unobserved, but at last declares its operation by symptoms."

Since the more general adoption of direct exploration of the kidney through an incision in the loin or otherwise, a certain proportion of cases have failed to reveal any obvious cause for the symptom or symptoms which led to the adoption of the proceeding. It has, however, been frequently noticed that such cases were often completely and permanently cured by what was done. Amongst others Professor Annandale was one of the first to draw attention to this fact. A few examples of this kind, occurring at varying intervals during a somewhat lengthy experience of the writer's, has led him to believe that there may be other explanations than those hitherto offered. He regrets that only scanty notes were kept at the time of some

of his cases, arising from the fact that, in the absence of what was sought for, the existing conditions were insufficiently appreciated, while the results appeared either unexplainable or were referred to local states, such as the accidental fixation of a loose kidney, the division of a disordered nerve, or the moral effects of an operation. Further, he has frequently drawn attention at the time of exploration to the varying states of tension the kidney presented in different individuals: in one case this would resemble the resistance of a ripe plum, while in another the organ was flaccid and unresisting on pressure with the finger. Yet these differences were not always explainable.

In the early days of renal surgery he cut down on the kidney from the loin in a youth aged eighteen, expecting to find a suppurating focus either within or around the organ. The patient was suspected to have had scarlet fever three weeks before, and had in the meantime suffered intense lumbar pain; he had had a slight rash, some desquamation, a sore throat, and albuminous urine with casts. Harrison undertook the operation with some hesitation, and limited his incision so as just to enable him to put his finger on the kidney. This felt so tense that he extended the incision and opened it with confidence, expecting to find matter. This was not the case, and he closed the wound with the feeling that he had made an error in diagnosis. There was a full discharge of blood and urine from the wound for some days. The wound was lightly plugged with lint and in the course of ten days or so healed soundly. After the incision was made, the excretion of urine became far more abundant, and the albumin gradually and completely disappeared.

In 1887 he operated upon a man aged fifty years, who by the nature of his occupation spent a large part of his time underground. Occasionally he suffered from hematuria in conjunction with colicky pains about the groins, and he came to the conclusion that he was suffering from renal calculus. As, however, the symptoms were neither urgent nor confined to one kidney, the consideration of operation was postponed. In the course of a few months after Harrison first saw him, and while he was continuing his work underground, the urine became largely and constantly albuminous and there was some pain referred to the right loin. The Doctor took him into the Royal Infirmary at Liverpool, and explored the right kidney, which was found to be enlarged and tense. An incision an inch in length was made through the cortex, and the pelvis was explored with the finger, but after careful examination no stone could be found. There was a considerable discharge of blood and urine, which continued for a fortnight or so, a drainage-tube being retained in the wound; on the withdrawal of the latter, healing followed and the urine became quite normal. He heard some time afterwards that the patient remained in excellent health and was able to resume his ordinary occupation.

Another case came under his observation in 1893—that of a woman, forty-four years of age, who had suffered from slight hematuria at times for a year previously; occasionally the urine was albuminous. Shortly after he saw her she had a severe attack of influenza, which was followed by an aggravation of her renal symptoms. She complained of pain on pressure over the left kidney, and the albumin not only increased in quantity but was constantly present in the urine. As she believed she had passed a small calculus some months previously, Harrison thought it a proper case for exploration, and this was accordingly made. The left kidney was found to be swollen and very tense. It was opened and explored with the finger, but no calculus could be discovered. There was a free drain of urine with some blood, which continued for about a fortnight, when the wound closed. The patient is now quite well and the urine normal.

Looking at the three cases he has briefly related, he believes the first was scarlatinal nephritis, the second nephritis from exposure to cold and damp, and the last subacute nephritis following most probably upon influenza. Among other features, each case was characterized by the presence of albumin in the urine, which he is inclined to attribute to inflammation or its immediate effects. We do not sufficiently recognize the intense degree of vascular and tubular infarction that attends some grades of nephritis. Some years ago he saw a girl seven years of age who was suffering from scarlet fever of a malignant type; almost complete suppression of urine was the leading feature in the case, and death took place in four days from the commencement of the illness; at the necropsy the kidneys were found to be so highly congested that he was not surprised at their being unable to excrete. At the time the thought occurred to him that an incision into them appeared to be the only means that might have been effectual in restoring their function.

In a recent paper on "Scarlatinal Nephritis and its Varieties," Dr. Meadows Turner remarks: "Out of the 5109 cases, fifty-five died with nephritis, either alone or complicated with other lesions. This number includes those who presented some symptoms during life, as well as some others in whom after death extensive disorganization of the kidney was found, though during life there were no sufficient symptoms for diagnosing such a complication."

That inflammation attended with exudation, but not necessarily with suppuration, is sufficient to destroy the functional power of an organ, is evidenced in the case of the testes, where ability to procreate is sometimes lost by synchronous or successive attacks of epididymitis on the two sides. The late Mr. Henry Smith, in connection with this subject, not only showed that the progress of this disease might be curtailed and pain removed, but that the function of the organ might be preserved by a limited division of the investing tunic. In this way, he urged, the disastrous effects of tension on the organ might be averted. Harrison has frequently availed himself of this practice with advantage.

A few words may be added as to the nature of the operation which might be appropriate in cases of suspected kidney tension, and as to the time and occasion of its application. It may be stated as being that usually adopted for the exploration of the kidney with the finger by way of a small transverse lumbar incision. The surgeon will then be able to judge from the feel of the organ as to whether it is desirable to open it. If the indications are not clear, the wound on being closed by sutures usually heals by first intention. At all events, no risk is incurred. In the second place, the operation should, of course, be reserved for cases where there is evidence that the recuperative power of kidneys suffering from nephritis is overweighted. Where after an attack of this kind the albumin is not disappearing from the urine, and there is a prospect, unless some relief is found, of permanently damaged kidneys resulting, then a trial of this expedient may be undertaken without adding to the gravity of the circumstances. In what time all traces of a nephritis, either acute or subacute, should have disappeared from the urine before the surgeon is called in, is rather a point for the physician to determine. That many cases of nephritis with high tension and subsequent structural deterioration must necessarily be attended with cardiac hypertrophy or enlarged powers of circulation, is at once obvious. Diminished capacity to excrete can only be compensated for by increase in the rapidity of the blood-current. In the restoration of function we have the only safeguard against the development of this complication.

THE SURGICAL TREATMENT OF CERTAIN FORMS OF BRONCHOCELE.

The thyroid enlargements which Dr. Shepherd considers suitable for operative treatment are the cystic and the colloid forms, the latter being usually encapsulated. The method he adopts is enucleation of the growth, which he has successfully performed in sixteen cases without a death. The single cysts are the simplest cases. Sometimes the cyst-wall is so thin and friable that it cannot be enucleated, but requires to be picked out piece by piece, usually giving rise to abundant hemorrhage from the veins.

The reasons leading to operation have been difficulty of swallowing and of breathing; unsightliness; and rapid increase in size, causing pain and discomfort. Occasionally the growth gave rise to no symptoms except nervousness, yet after removal the general health improved greatly.

Dr. Shepherd prefers ether as an anesthetic, and considers the fear of the congestion of the vessels by its use only a bugbear.

He describes in detail the operation he practices, and some of the difficulties to be overcome. After enucleation of the cyst, and the securing of all bleeding points, he packs the cavity with iodoform gauze, allowing the end of the strip of gauze to protrude through the lower angle of the wound. He sutures the skin-wound with sterilized horse-hair sutures. Healing is extremely rapid, the patient being allowed up on the second day, and usually leaving the hospital about the eighth day after operation.

Dr. Shepherd gives a detailed account of his sixteen cases, with a report of microscopical examination of many of the tumors.—*Medical Chronicle*, October, 1895.

THE ANTISEPTIC PROPERTIES OF IZAL.

Prof. Sheridan Delepine has investigated the disinfectant and germicidal qualities of this drug. He has worked with it in connection with four types of pathogenic bacteria, viz., tubercle bacillus, colon bacillus, *Staphylococcus pyogenes aureus*, and anthrax spores, and forms the general conclusion

"that izal diluted with 100 or even 200 parts of water is a powerful and reliable antiseptic when contact of a sufficient length of time is secured. As an antiseptic it is more powerful than carbolic acid, and, if it be remembered that it causes very little irritation of living tissues, that in moderate doses it is not poisonous, and that, practically speaking, it is not volatile, there can be little doubt as to the immense advantages which it possesses over carbolic acid in many directions." Izal can be freely administered internally, can be used over extensive wounds, or injected under the skin without bad effects; it does not damage instruments. Fresh tuberculous products of great virulence (*e.g.*, from a cheesy lymph-gland), when mixed with about an equal quantity of izal (1:10 of water), and allowed to dry at ordinary temperature for twelve hours, are completely disinfected. Diluted with 200 parts of water, izal is a safe germicide for the *Bacillus coli communis* or less resistant organisms; diluted in 100 parts of water, it is a reliable antiseptic in wound treatment, as tested by its action upon the *Staphylococcus pyogenes aureus;* on the growth of anthrax spores, izal has a remarkable inhibitory power.—*Medical Chronicle*, September, 1895.

INFANTILE INTUSSUSCEPTION.

Wiggin (*Medical Record*, Jan. 18, 1896), in reporting two cases of intussusception, has made a statistical study of the results from the treatment of this affection by intestinal distention or laparotomy. He has collected in all 103 cases, fifty of which occurred during the fourth, fifth, and sixth months. Eighty-nine per cent. were of the ileo-cecal variety. Two cases were cured by sloughing, and thirty-nine were treated only by means of inflation or enemata, or both, and sixteen of these, or forty-one per cent., recovered. In one case, while the enema was being administered under chloroform narcosis, and in the inverted position, the infant vomited, inspired the vomited material, and died. Seventy-two cases in all were treated by intestinal distention; some of these required laparotomy; failure to effect reduction occurred in seventy-five per cent. If it is desired to treat a case of infantile intussusception by means of intestinal distention, at least 1½ pints of tepid saline solution should be placed in the reservoir, which is not to be elevated above three feet; and if this is not successful after one trial, the method should be abandoned and other means employed. Laparotomy, performed sixty-four times by the author, resulted successfully in twenty-one, or 32 8 per cent. of the cases operated on; the average age of these infants was about 6½ months. In seventeen of the cases inflation or enemata, or both, had previously been tried without success. In eight cases the invaginated bowel was readily reduced; in ten cases it was reduced with difficulty. The mortality of laparotomy is 67 2 per cent. If we count only the operations, successful and unsuccessful, that have been performed since the technique of general surgery has become generally known, say since 1889, and throwing out as before the cases in which the operation has not been completed, the bowel incised or excised, we have a total of eighteen cases, of which fourteen were successful and four were unsuccessful, giving a still lower percentage of mortality, or 22.2 per cent., which the writer believes is a fair estimate of the risk to-day of abdominal section performed on a young infant for the relief of this disorder, provided the operation is performed within forty-eight hours of the onset.

In case it should be impossible to reduce the intussusception, Maunsell's method is advocated. This is performed by slitting the intussuscipiens and making gentle traction on the intussusceptum until its neck appears outside the opening in the intussuscipiens; the base is then transfixed with two straight needles armed with horse-hair, and the intussusceptum is amputated a quarter of an inch above the needles, leaving a fair stump beyond them; the sutures are now passed through the invaginated bowel, caught up in the interior of the bowel, divided and tied; the invagination is reduced, and the longitudinal slit is closed.

THE TREATMENT OF SYPHILIS BY HYPODERMIC INJECTIONS OF MERCURY.

Edward Martin and H. Kiersted (*Philadelphia Polyclinic*, Jan. 4, 1896) report nine cases treated in this manner, from which they draw the following general conclusions, which they state they would not venture to do from so small a number of cases did the results not accord well with results of much more extended trial elsewhere.

As a routine practice, the treatment of syphilis by the hypodermic injection of either soluble or insoluble preparations of mercury is not more efficient than other and commoner means of administering the drug, and occa-

sions so much pain that it is impracticable. This pain may be slight and transitory or almost intolerable in its intensity, entirely incapacitating the patient for work for days at a time. There is no certain way of avoiding its infliction, and it may suddenly become manifest in patients who have taken many previous hypodermic injections without complaining.

By the observance of the simplest antiseptic precautions, abscess may certainly be avoided.

Before beginning hypodermic injections of mercury in the treatment of syphilis, the practitioner should invariably assure himself that the kidneys are not diseased, since practically all fatal cases of salivation—and there have been many in this treatment—have occurred in the persons of those suffering from kidney disease, hence unable apparently to eliminate the drug. When insoluble preparations are employed, the site of injection should be noted with particular care, so that in case of beginning symptoms of salivation an incision may immediately be made through the seat of such injection and any unabsorbed mercury may be cleared out.

In cases especially calling for an immediate mercuric impression, hypodermic medication should be the method of choice, supplemented by inunctions.

THE BURIED TENDON SUTURE.

At the last meeting of the Southern Surgical and Gynecological Association, held in Washington, Dr. H. O. MARCY of Boston read an instructive paper upon the history of the buried animal suture and the best methods for its preservation and use. Since Dr. Marcy was the first to suggest the employment of buried sutures and demonstrate their value, his contribution upon the subject is of more than ordinary importance. His first contribution upon the buried catgut suture was published in 1870. In 1880 he substituted tendon for catgut, as in every way superior, and in many articles has called the attention of the profession to the importance of its general adoption.

Dr. Marcy stated that the defect of catgut is inherent in its structure, and it cannot be rendered satisfactory by any method of preparation. "The connective-tissue sheath of the intestine of the sheep from which catgut is manufactured has its ultimate fibres disposed in an oblique direction, crossing diagonally. This serves the physiological purpose of foreshortening and distention as well as strength. The violin string (catgut of commerce) is not unlike a very thin piece of tissue silk which has been cut diagonally and then twisted. This would make a very imperfect fish-line, and the comparison is not overdrawn. When dry, the gut is strong, but when wet it is flat, elastic, and slippery. Chromicizing only partially remedies this defect, and sterilization by any process cannot correct the damage which the intercellular cement substance has sustained from bacterial infection, and the maceration to which, in preparation, the catgut is necessarily subjected."

Properly prepared tendon not only escapes these injuries, but has an entirely different ultimate structure. The connective-tissue cells are disposed parallel to each other and are the strongest structures of the animal economy. Of equal weight, carefully selected tendon will sustain a tension equal to that of silver wire. Tendons taken from the freshly killed animal are quickly sun-dried, and kept dry until their final preparation. Soaked in a 1:1000 mercuric solution until supple, the tendons are carefully cleaned, assorted, and dried between sterilized towels. They are then chromicized until of a dark golden-yellow color, and preserved in sterilized linseed oil to which one-tenth part of the crystals of carbolic acid has been added.

Sutures thus prepared improve with age. When desired for use, they are soaked in a 1:1000 solution of bichloride of mercury until supple. Preservation in absolute alcohol, boiling in it under pressure, boiling in oil of caraway seed—indeed, preparation by any of the many methods suggested for the sterilization of catgut—tend only to injure the inherent structure of tendon, and are not to be commended.

The tendons from the tail of the smaller varieties of the kangaroo furnish by far the most valuable suture material yet found. The anatomical construction of the psoas muscles of the rat, squirrel and opossum is not unlike that of the kangaroo; each fasciculus has its independent tendon extending the entire length of the tail. The tendons of these smaller animals are too short and too fine for general use, those from the large kangaroo too large. The latter when subdivided fray and are less valuable.

Dr. Marcy reported that from various sources kangaroo tendons were very defective. One lot of 300 lbs., collected for him, was almost entirely from the large kangaroo, and so undesirable that he refused to accept

it. This lot found its way into the American market, and is being distributed to the profession. Selected tendon should be furnished, all prepared, at $10 per hundred, although it is usually sold at a much higher price.

Dr. Marcy, in closing his paper, expresses the belief that all aseptic wounds, including even the larger amputations, should be closed in layers by buried tendon sutures without drainage. The edges of the skin should be coapted by means of a parallel continuous buried suture (subcuticular), and the wound sealed with iodoform collodion, strengthened by a few fibres of cotton.

The advantages of the buried sutures are, briefly, as follows: Aseptic, buried in aseptic wounds, they remain aseptic, and the repair is primary without inflammation, pain or suppuration. The iodoform-collodion seal renders subsequent infection impossible. No sutures are to be removed, and no other dressing is required. The tendon is absorbed so slowly that it may be traced in the tissues months after implantation, and ultimately it is replaced by a band of vitalized connective tissue which serves as a permanent reinforcement of the united structures.—*Boston Medical and Surgical Journal*, Dec. 5, 1895.

MODIFICATION OF THE DISTAL LIGATURE FOR ANEURISMAL DILATATION; A SUGGESTION.

Hayes (London *Lancet*, Oct. 12, 1895) states that the majority of hospital surgeons from time to time encounter cases of aneurism where, the possibility of dealing with the proximal portion of the diseased artery being out of the question, the problem of inducing coagulation within the sac, either by the Brasdor-Wardrop application of ligatures on its distal side or the extremely hazardous introduction through the sac-wall of foreign agents, must be considered. He has occasionally observed notable delay with regard to evidence of improvement after distal ligature, and in the case of a thin-walled aneurism such retardation may entail rupture of the tense, frail wall where otherwise cure would have been the result of operation. It occurs to him that thrombosis can be caused to extend from a distal point rapidly and safely to even a deeply situated aneurism by such a measure as the following:

The surgeon selects a favorable site for ligating the vessel or vessels on the distal side of the aneurism, and, in the event of there being two trunks for ligation, he determines which is to be doubly ligated and divided. Rough measurement of the distance between the aneurism and the point for double ligature with division of the artery, is now to be made, and a piece of sterilized catgut is to be cut, its length being sufficiently in excess of the measured interval. The arterial trunk having been exposed, a double aseptic silk ligature is passed beneath it, and the loop divided so as to leave cords with a space of, say, half an inch between them. The more distal ligature is now to be knotted and its ends removed, but the proximal ligature is to be only loosely tied with a single knot, which will serve merely to moderately compress the arterial walls. It will afford additional help and security if the artery needle be maintained in position beneath the vessel up to the time for tightening the proximal ligature. The next and distinctive step is this: A small opening is to be made into the lumen of the artery, midway between the ligatures, and through the aperture a slender cannula, occupied by nearly half the length of aseptic catgut already referred to, is to be introduced and directed towards the proximal or aneurismal portion of the vessel, until it shall have passed just within the part lightly compressed by the proximal ligature. The catgut is now to be gently pushed on through the cannula until the surgeon estimates that its free end will have reached, or perhaps entered, the aneurismal dilatation. The cannula is then to be withdrawn, and the proximal ligature to be firmly tied on the artery, corresponding to the distal end of the intra-arterial cord of catgut. Subsequently the artery and free part of the catgut are to be cut across at the site of aperture midway between the ligatures. The object attainable by introducing into the lumen of the vessel a bougie of catgut long enough to reach the sac can be readily understood: the foreign substance must soon become enveloped in a coating of fibrin, and, as it were, act as a gubernaculum for extension of the coagulating process within the aneurism; at the same time the sac-wall will not have been injured or weakened by any needle puncture, while risk of distant embolism will have been guarded against by the previous ligation of the trunk or trunks on the distal side. The question of danger from hemorrhage during puncture of the artery can easily be answered. The finger and artery needle, supplying points of pressure and counter-pressure, will afford absolute security while the opening is being made and the introduction of the cannula being effected. The cannula is well filled by

the catgut, so that when the proximal ligature is tightened on its tip little, if any, blood can escape through the instrument. Once a sufficient length of catgut has been introduced, the tip of the cannula is withdrawn and the encircling ligature made perfectly tight on the artery containing the clot-determining catgut.

It seems rational to infer that aneurisms that are otherwise beyond the reach of surgical treatment may, with at least comparative safety, have conducted to them thrombi capable of inducing cure by coagulation. Moreover, the catgut, being adapted for solution and absorption under the agency of leucocytes, will, after having effected its purpose, gradually disappear, and with it, in all probability, redundant blood clot occupying the arterial lumen.

A CASE ILLUSTRATING A VERY EFFECTUAL METHOD OF TREATING EXTENSIVE MALIGNANT DISEASE OF THE BREAST.

LANE (London *Lancet*, Oct. 12, 1895) calls attention to the many cases of extensive cancer of the breast and of the superjacent or surrounding skin, associated with infection of the axillary glands and possibly also of those in the subclavian triangle, in which the surgeon must feel that if he could make a clean sweep of the whole disease he would be able to offer his patient a fair chance of subsequent freedom from recurrence, and in the immediate future much certain relief from pain and mental distress. The great difficulty he has to meet is the covering of a large and raw square surface whose sides may vary in length between eight and twelve inches. He also recognizes the risks of septic infection associated with such a large wound, its painful and tedious nature, and the fact that even if he succeeds in grafting such a large area the resulting scar is necessarily a most unsatisfactory one.

He states that since he has adopted the operative measures described in his previous paper—namely, removing the pectorals, carefully dissecting away every particle of glandular and areolar tissue from the axilla, and also, if necessary, dividing the clavicle and clearing out the subclavian triangle—he has found himself very well repaid for the extra time and trouble such an operation demands, and the very slight added risk from hemorrhage and a certain limitation of movement resulting from the removal of the pectorals more than compensated for by the subsequent increased duration of the patient's life. One comes across cases, however, in which the skin is so extensively infected that this last operation is unsatisfactory owing to the large raw surface which is necessarily left. In such cases he urges what would appear a heroic measure—amputation of the arm at the shoulder in order to obtain enough skin to cover the raw surface and to give a nice soft covering to the part. The patient will certainly die if she is not operated on, and in all human probability the arm will shortly become a source of distress to the sufferer owing to interference with the venous channels; therefore it is no great deprivation to remove it. Besides, it diminishes the risk of the operation, ensures immediate union, and within a very few days the patient is enabled to get about and enjoy an active existence.

The writer operated upon a woman twenty-nine years of age, on September 9, 1895, who was suffering from carcinoma of the right breast, which she had observed for the first time five months before. The mass was large and involved almost the entire breast. The skin was adherent over it and was ulcerated over a space as large as a five-shilling piece. All about the ulcer and for an area around the breast the skin presented minute nodules of infection. There were enlarged glands in the axilla, and in the subcutaneous tissue over the coracoid process a gland could be felt. It had apparently been infected from some cutaneous nodules just below it. Nothing could be felt in the liver, and the patient's general health and weight were as good as ever they were. The advantage of removing the arm, the possible benefits she would derive from it, and the risks she ran, were fully explained to her, and she insisted on undergoing the operation. An incision was made along the length of the clavicle to the middle line, and the middle third or more of the clavicle was exposed and removed. The subclavian artery and vein were tied at the margin of the scalenus anticus, and all the areolar tissue and glands in the subclavian triangle carefully dissected out. There was no obvious infection of these glands, but beneath the clavicle the upper limit of the enlarged axillary glands was defined and the glands were turned downwards. Great care was taken not to injure the supra-scapular or other vessels crossing the subclavian triangle. From the inner limit of the horizontal incision another was carried down vertically along the middle line for about nine

inches. It lay well outside the limit of skin infection. From its lower end another incision was carried backwards to the posterior fold of the axilla at what seemed a safe distance from the growth, and then it was run upwards along the posterior fold to the axilla, when it ran across the arm to the outer end of the clavicle. A vertical incision was made from the upper limit of the posterior axillary fold to the elbow, where it was crossed by a circular incision. The skin and subcutaneous tissue were dissected up off the deep fascia as far as the deltoid, out of which a large and sufficient flap was cut to ensure as much vascularity of the flap as possible. The inner part of the deltoid was removed and the limb disarticulated. The skin and all the subjacent soft parts were dissected off the sternum, clavicle, ribs, cartilages, intercostal muscles, serratus magnus, and posterior wall of the axilla, and the great square flap, which measured more than nine inches along each side, was fitted accurately and comfortably into the large exposed raw area. The part that corresponded to the circular incision around the arm was united to the edge of the median or sternal incision, while the edges of the vertical incision in the arm were connected to the upper and lower horizontal incisions in the thorax. Very little blood was lost during the operation. The growth was found to involve the greater pectoral, but the most careful subsequent examination of the part excised showed that the primary growth, the skin and glands were very freely removed. The patient ran the usual course of an aseptic wound, experiencing no discomfort or pain in the part.

The removal of a considerable portion of the clavicle enabled him not only to remove all glandular and areolar tissue beneath and about it and to tie the vessels securely and with a minimum loss of time, but it also allowed the scapula to fall into such a position as to give a greater length of flap and a less strain upon it than if the clavicle had been left intact.

Every operating surgeon of large experience is confronted too often with the results of very imperfect removal of the diseased structures, so much so that he sometimes cannot but think that the operator was influenced by a desire not so much to effect the thorough removal of the affected parts as to obtain a rapid recovery. It would seem obvious that such a course is not likely to reflect much credit on surgeons, and especially on operations for cancer of the breast.

TRAUMATIC HYDROCEPHALUS.

QUERVAIN (*Archiv für Klin. Chir.*, bd. 51, heft 3) states that traumatic hydrocephalus is caused by a partial or not entirely united fracture of the skull, the skin remaining uninjured. The fracture refuses to heal because the edges are not sufficiently approximated, being for instance driven in or separated by normal or abnormal intra-cephalic pressure; or union may be prevented because of interposition of the soft parts, such as the dura, periosteum, brain, clots of blood, or cerebro-spinal fluid, or because of disease of the osseous system—as, for instance, rickets or cretinism—or because of injury to the contents of the skull. There is always in these cases tearing of the dura and usually lacerations of the cortex extending as far as the lateral ventricle. The latter is opened either directly or subsequently by a process of traumatic porencephalus. Following the original injury the further course of the affection differs according to the health of the child. In healthy children the bony defect undergoes no change, or it gradually becomes more marked from pressure of the growing brain, eventuating in asymmetry of the skull; the edges of the defect are somewhat beveled by absorption, and the opening is finally closed by the formation of a more or less resistant membrane. In rachitic children a simple fissure can in a short time, as the result of absorption, become an extensive defect. This result can take place even though dura and periosteum are not detached. These membranes favor union and partially close the opening.

When a cephalo-hydrocele is developed spontaneous cure may result from diminished production of cerebro-spinal fluid, from lessening of the maximal pressure produced by crying, and retraction and increased strength of the covering aponeurosis, finally narrowing and obliteration of the communication within the interior of the skull.

The treatment in recent cases consists in elevation of any depressed portion of the skull, and bone-suture, taking all necessary precautions to avoid dangerous brain-pressure. Cases which are stationary or progressive may be treated by a complete and permanent reapposition; by a pressure dressing, thus favoring retraction of the aponeurosis; iodine injection, having for its object the same end and also tending to lessen the production of the liquid; ventricle drainage, especially in all cases complicated by epilepsy, also in rachitic cases and where the

bony defect is very great; finally plastic operation, as performed by König, is indicated where there is no epilepsy or rickets and where the bone defect is very marked.

As to prognosis, there is usually a spontaneous cephalo-hydrocele; the bony defect is not usually closed. There is always the danger of epilepsy and meningitis. Rickets always makes the prognosis more serious.

PULMONARY SURGERY.

Surgical procedures entailing operative measures upon the lung substance, including the larger bronchi, are still undertaken with a degree of caution easily explained, if we consider how inherently dangerous are the conditions that may necessitate operations in that region. It is safe to assert, as a matter of fact, that we will never be able to deal surgically with the lungs as we now do with many other organs and regions that were once forbidden ground.

Attempts at hemostasis in lungs widely exposed by large traumatisms to the chest-walls were among the first attempts at pulmonary surgery, and, with the aid of antisepsis, excellent results were obtained. Extirpation of tubercular apices was first performed quite a number of years ago, with problematical results, even when the patient survived the operation, but has now, and justly, been practically abandoned.

That pulmonary surgery is now making decided progress, however, must be conceded, for the number of operations upon the lungs reported in the medical press is steadily increasing, and a discussion upon this subject held at the Société de Chirurgie in Paris, November 6, 13, and 20, 1895, demonstrates that the accumulated experience of surgeons in this direction is assuming no little importance.

In hemorrhage within the pleura consequent upon punctured or incised wounds penetrating the pulmonary substance, the general opinion appears to be that if the bleeding does not cease spontaneously, after a reasonable delay it is proper, after ascertaining that the hemorrhage is not due to a lesion of the intercostal artery, to enlarge the wound if necessary, and seek the bleeding point within the substance of the lung and secure it. On the other hand, it seems useless to operate if there is any evidence that the bleeding has stopped, unless suppuration has occurred.

Dr. OUENU relates the case of a lad nineteen years old, in which a wound of the chest through the seventh intercostal space gave rise to copious effusion within the pleura. Tapping on two occasions, at a week's interval, gave issue to 600 grammes and 2000 grammes respectively of almost pure blood. As the general condition kept growing worse, a free incision was made, clots turned out, and the cavity was packed with iodoform gauze. This stopped the bleeding, and the cavity rapidly filled up, so that the lad was discharged a fortnight after the operation.

In this class of cases, however, the indications for operation, according to Dr. TUFFIER, are difficult to interpret, and this authority relates three cases of hemothorax, in all of which a strong rise of temperature appeared to indicate that the pleural contents were undergoing septic changes, and yet in which aspiration showed that such a process had not occurred. These cases were, therefore, not operated on; they recovered spontaneously.

Dr. Tuffier, in cases of operations on the lung, insists upon the necessity of detaching the parietal pleura whenever the lesion sought for is not at once found. In one instructive case of pulmonary gangrene this procedure allowed the operator to find a spot of induration of the lung that could not be discovered while the pleura still covered the organ. Incision released a large collection of pus. Washing out and drainage completed the operation, and the patient did well.

Somewhat analogous cases had been seen by several members of the Society.

Pyrexia *per se* does not seem to be a sufficient indication for operation, and the measure advocated by Dr. Tuffier, according to Dr. MICHAUX, should be reserved for cases in which pleuritic adhesions exist over the site of the lesion in the lung.

Dr. LUCAS-CHAMPIONNIERE thought we were often too hasty in operating in cases of hemothorax, which, as he thought, would in the majority of instances be relieved by simple immobilization, under the use of which the bleeding commonly stops.

In deep-seated abscess of the lung, it seemed to be the general opinion that detachment of the pleura would be useless if not dangerous, as the detached pleura might form a sacculation in which the evacuated pus would necessarily accumulate. A number of instances of evacuation of pulmonary abscesses by direct incision were given.

This very brief analysis of the results achieved by the French surgeons represents

very fairly, we believe, the practice adopted at the present time by leading surgeons the world over, and shows the limitations as well as the possibilities of pulmonary surgery. In a word, we are now able to arrest certain forms of pulmonary hemorrhage, to evacuate septic pleural contents, to remove foreign bodies, and to drain abscesses occurring within the substance of the lungs, in cases selected with great care, and it is questionable whether the next few years are destined to show much further progress in this department of surgical endeavor.—*International Journal of Surgery*, January, 1896.

ACUTE VAGINAL GONORRHEA.

H. C. Bloom, in the *Philadelphia Polyclinic* of January 25, 1896, advocates prompt and energetic treatment in this disease, to prevent future pelvic involvement. He advises immediate washings of the vagina and contiguous parts with solution of hydrogen dioxide, which seems to be the one agent that searches every fold and crevice, cleansing and putting them in condition for the next step, which consists in the thorough application of silver nitrate in solution (sixty grains to the ounce) over the entire surface. This is at once followed by the careful packing of the vagina with powdered boric acid, and the placing of a small soft wool tampon. The patient is requested to return in twenty-four hours, when the tampon and packing are carefully taken out, with probably a cast or exfoliation of the destroyed or infected tissue —if not as a whole, then in large flakes and sufficiently deep to destroy the gonococcus in the papillary layer of the mucosa. This practically cures the gonorrhea. A simple wound remains, and the next step is to wash this raw surface with a solution of mercuric chloride, 1:4000, following this by loosely packing the vagina with moist iodoform gauze, which is allowed to remain seventy-two hours. Upon its removal the surface will present a clean, healed appearance.

Reviews.

Infantile Mortality during Childbirth, and its Prevention. By A. Brothers, B.S., M.D. Philadelphia: P. Blakiston, Son & Co., 1896.

This is the William Furness Jenks prize essay of the College of Physicians of Philadelphia awarded the prize by the Trustees of the Prize Fund during the last year. It covers nearly 200 pages, and the text is accompanied by copious bibliographies. The essay deals with the following topics: The Statistics of Infantile Mortality; the Morbid Anatomy and Etiology, as illustrated by 47 post-mortems; the Causes of Infantile Mortality, embracing maternal causes preceding labor, and both diathetic and infective diseases, and other maladies influencing the mother and fetus. There are also chapters on the maternal causes during labor, the mortality due to fetal causes before, during, and after labor, and the prevention of infantile mortality.

To those who are interested in this subject this essay will prove a valuable work of reference, for while the author does not take it upon himself to express positive personal opinions as to the methods which should be employed in the treatment of the mother and fetus or the new-born child, he presents in a clear and lucid manner the views of other authorities who have written largely upon this subject.

The Toxic Amblyopias: Their Classification, History, Symptoms, Pathology, and Treatment. By G. E. de Schweinitz, A.M., M.D. Illustrated. Philadelphia: Lea Bros. & Co., 1896.

This is an essay of nearly 250 pages to which was awarded the Alvarenga Prize of the College of Physicians of Philadelphia in October, 1894, and consists of ten chapters, with an appendix, which deal with the various drugs and other poisonous materials which cause amblyopia. In the Addendum the relation of hysteria to certain varieties of toxic amblyopia is considered.

Dr. de Schweinitz divides the poisons which produce amblyopia into two great classes. The first are those which directly affect the optic nerve; the second are those whose amblyoptic symptoms are unaccompanied by retinal or optic-nerve lesions. In the first class are the poisons which produce a chronic retro-bulbar neuritis and other forms of optic-nerve and retinal disease. In the second are those which produce mydriasis, myosis, or irregular eye symptoms. It is surprising to note how very many medicinal substances are on record as having produced untoward ocular manifestations. It goes without saying, however, that alcohol and tobacco, drugs which are largely abused as habits, are the most frequent causes of toxic amblyopia. Among other causes we note such drugs as iodoform, the coal-tar products, quinine and salicylic acid, and male-fern.

The illustrations, which are quite plentiful,

and which are in the form of plates as well as engravings, clearly illustrate the text, while copious bibliographies are found in the footnotes of every chapter.

Although this essay deals with a very special subject, part of a specialty, it is one which possesses great interest to many general practitioners; and as this is by far the most exhaustive treatise upon the subject, it will undoubtedly become a classic both in ophthalmological and general medical literature.

The publishers have issued the book practically in the form of an *edition de luxe*, the binding, paper and printing being unusually handsome.

SYPHILIS IN THE MIDDLE AGES AND IN MODERN TIMES. By Dr. F. Buret. Translated from the French, with notes, by A. H. Ohmann-Dumesnil, M D. Volumes II and III of "Syphilis To-day and among the Ancients."
Philadelphia: The F. A. Davis Company, 1895.

Buret, in his most interesting work, establishes apparently beyond controversy the fact that the first appearance of syphilis is lost in the mists of antiquity. The records of the Assyrians and the Babylonians contain proofs of the existence of the disease, and it is shown that it existed among the most ancient people of America. It is held that its frequency from a historical standpoint was dependent upon the degree of civilization, the disease in this respect resembling tuberculosis. Buret thoroughly refutes the doctrine of the American origin of syphilis, the epidemic which raged in Italy shortly after the discovery of America having been simply a coincidence dependent on the presence of the armies of several lands in that country.

This volume is a sequel to Syphilis in Ancient and Pre-historic Times, by the same author. Buret shows that the debauches of the Crusaders in the Eastern country were responsible for the violent outbreak of the disease which occurred after their return.

The book closes with a brief chapter on the Treatment and Prophylaxis of Syphilis, including under the latter caption public hygiene. It is thoroughly readable, and shows an immense patience of research.

URIC ACID AS A FACTOR IN THE CAUSATION OF DISEASE. By Alexander Haig, M.A., M.D., F.R.C.P. Third edition. Illustrated.
London: J. & A. Churchill, 1896.

Four years ago we published an enthusiastic review of this exceedingly interesting contribution to the study of uric acid by Dr. Alexander Haig. The present volume is very considerably enlarged over the first edition, and contains not only the modifications which further research has made in Dr. Haig's opinions about this subject, but also additional information derived from new researches.

Dr. Haig still has the courage of his convictions that many of the symptoms and ailments which are put down to other causes are in reality due to uric acid, and while in some respects the theories upon which he bases some of his conclusions can with truth be severely criticised, yet after all it is by means of such enthusiasm and constant clinical research that the truth of this important matter is to be determined. Certainly some of his hypotheses concerning the causation of certain symptoms afford the most rational explanations that we can make to-day; and that the author's views appeal to the common sense of a large number of the medical profession is proved by the fact that his monograph upon this special subject has reached a third edition within four years. Probably the future will show that Dr. Haig is somewhat extreme in some of his views; but there can be no doubt, on the other hand, that much that he has told us will remain a distinct gain to our medical information. It will be remembered that among other conditions which he tells us are closely associated with uric acid as a cause are high arterial tension, epilepsy, paroxysmal hemoglobinuria, Bright's disease, diabetes, gout, and rheumatism.

THE PATHOLOGY AND SURGICAL TREATMENT OF TUMORS. By N. Senn, M.D., Ph.D., LL.D. Illustrated with 515 engravings, including full-page colored plates.
Philadelphia: W. B. Saunders, 1895.

This work, fittingly dedicated to the elder Gross, is a timely publication, since it takes up a detailed study of a class of diseases evidently on the increase, the treatment of which receives such vague notice in general surgical text-books that the practitioner is often at a loss as to the proper methods of procedure. An effort is made to found the whole teaching upon pathology, Senn holding that increase of volume caused by a tumor is due entirely to erratic cell-growth from a matrix of embryonal cells of congenital or post-natal origin. The classification is founded upon the origin of the tumors, and the microbian theory of etiology is disposed of shortly as not yet established.

The first portion of the book is devoted to general considerations. This is followed by detailed consideration of each class of tumors, with a section appended upon Retention Cysts.

In considering the general treatment of tumors the statement is made that no kind of general medication has any influence whatever in limiting tumor-growth. With this statement practically every surgeon will be in accord. The antitoxin treatment, as practiced by Coley, receives brief mention, since the author has had no success with it.

The various methods of cauterization, of compression and constriction, are described at length, but without endorsement. Perhaps the most forceful teaching in this section of the book is the italicized sentence which practically closes the chapter: "*In the removal of a malignant tumor, enucleation must never be attempted: the tumor must be excised.* Extirpation here means the removal not only of the tumor, but also of all infected tissues in its vicinity or in the same region. The knife or the scissors must be used from the beginning to the end of the operation. The extirpation of a carcinoma, unless the tumor involves a free surface and is recent and localized, must be followed by excision of the lymphatic glands of the same region, whether enlarged or not enlarged. The tumor and the string of lymphatic glands should be removed in one continuous piece by thorough and clean excision. It has been shown that carcinoma frequently selects the connective tissue as pathways for local infection; hence as much of the connective tissue as possible in the vicinity of the tumor should be included in the excision. Muscles are often divided or removed in operations for malignant tumors. Partial removal for malignant disease of organs not essential to life is bad surgery. In operating for malignant disease, parts and tissues must be removed regardless of the cosmetic result. The surgeon who operates with a view of securing a good cosmetic result is very liable to perform an incomplete operation. The primary indication in the extirpation of a malignant tumor is to remove all infected tissues; the cosmetic result is a secondary consideration, and can be improved immediately or later by plastic operation."

The author, after reviewing the classifications of Virchow, Cohnheim, and others, gives his own system, which seems a serviceable modification of those of his predecessors. In a special chapter on Carcinoma, he states that enlargement of the lymphatic glands in the region occupied by a non-ulcerating tumor, and without involvement of the glands in other regions, is almost positive proof of the carcinomatous nature of the tumor. This is a valuable point, usually learned only as the result of long experience.

He holds that "radical operation is indicated in all cases in which general infection has not occurred, and the primary and original tumors are of such size and extent and are so located as to enable their complete removal by an operation not immediately endangering the life of the patient, and leaving a wound which can be closed by suturing or which can be healed by a plastic operation or by skin-grafting, and the patient's strength is such as to warrant the operation."

The operative procedures indicated for the removal of carcinoma in various regions of the body are given in detail, and for the most part the best methods are selected.

This work is worthy of its distinguished author. It is better than any of his previous books, and this is high praise. It is so clearly written and so lucid in its teachings, and moreover the authority of the writer is so great, that it should prove of incalculable benefit to the profession at large, and incidentally to the thousands of suffering patients who come to them for the diagnosis and treatment of tumors, unfortunately usually of a malignant type.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections. In photo-lithochromes from models in the Museum of the Saint Louis Hospital, Paris. With explanatory woodcuts and text. By Ernest Besnier, A. Fournier, Tenneson, Hallopeau, Du Castel, Henri Feulard, Leon Jacquet. Edited and annotated by J. J. Pringle, M.B., F.R.C.P. Part II. Philadelphia: W. B. Saunders, 1895.

The contributors to this Atlas are so well known not only by specialists but by the general American practitioner, that their names on the title page of a book such as this assures the purchaser of its excellence.

Part II contains colored plates of lupus erythematosus, hypertrophic rosacea, circinate papulo-squamous syphilides, xanthoma planum et tuberosum, and numerous excellent woodcuts.

The colored plates (photo-lithochromes) are better than any that have heretofore appeared, with the exception perhaps of the water color illustrations published by Fox some years ago. This is in part due to the advances made in reproduction of pictures in color.

The text is extremely simple, avoiding pathological discussions, and giving simply the essential features of the disease illustrated. The work deserves unqualified praise.

Correspondence.

LONDON LETTER.

By St. Clair Thomson, M.D., Lond., F.R.C.S. Eng., M.R.C.P. Lond.

The University of Oxford has long been known as the place where German philosophies go when they die. It has lately roused itself from this condition of a sort of dead-house of learning to take an active part in the history of the spread of education. This activity, however, partakes of the crab-like method of progression—it goes backwards. Oxford has stirred itself not to further intellectual development, but to actively obstruct it. Cambridge has been showing the same kind of retrogressive tendency, although not of so vigorous a nature. Both universities are united in refusing their degrees to women; not their degrees in medicine—these latter, in fact, have not been asked for,—but the usual degree in Arts. This refusal in itself is bad enough, but the injustice of it becomes marked when the following is borne in mind. For over twenty years women have been permitted to offer themselves for examination at Cambridge, and during more recent years also at Oxford, and have been placed in the pass lists according to their merit; not infrequently they have secured high places in the honors lists. During all these years they have passed through the same curriculum as the men; they have passed the same tests, but have been refused degrees! All they ask for is the hall-mark to attest that they have qualified for the degree of B.A., and this the universities will not grant! These guardians of the nation's intelligence allow women to study, to go in for and pass examinations, but decline to give the stamp which a man carries away as evidence of exactly similar work. I need hardly repeat the old and crusted objections which have been trotted out once again; they would scarcely be listened to outside the venerable walls on the Isis or the Cam. One was that in a mixed class (if the women were admitted as members of the University to the same classes as the men, for at present they have to study in their own colleges and classes) the lecturer might be hampered so as to decrease the thoroughness of his teaching. To this it is only necessary to point out that women at Cambridge have been studying physiology for over twenty years, and that the two professors whose classes they attended were amongst those who signed the petition in favor of their being able to get degrees. The Principal of Durham University reported that such fears were wholly groundless, and that the presence of women in the classes had been distinctly beneficial. For not only Durham but all the other universities of England and Scotland have opened their doors to women. Indeed a comparison shows that on this question Oxford and Cambridge are not only the most backward of British universities, but also of the universities of Europe and America. Still, after all, it is their nature so to be. It is only recently that Roman Catholics and Dissenters have been allowed to study in their colleges, and at Oxford the medical faculty is practically non-existent. They resist all progress, and although always finally defeated by the spirit of the age, they have the notoriety of being the last to bow to it!

The vexed question of professional advertising is ever present with us. Lately it has been very much to the front, as the editor of the *British Medical Journal* has been mulcted in the sum of $750 in an action for damages brought against him by a provincial physician who considered himself libeled in some remarks commenting on his "professional conduct." Readers of the journal in question will have noticed that under the head-line of "Medico-legal and Medico-ethical" Mr. Ernest Hart, the editor, has been in the habit of giving utterance to oracular opinions on the conduct of A or B, in answer to the queries put by A's or B's colleagues. In January last a question appeared in the paper from "X. Y. Z.," asking whether it would be regarded as infamous conduct or censurable if he allowed his name to appear on the prospectus of a large hotel as its physician. In reply, the editor stated his opinion to be that such a course would be regarded as covert and unprofessional advertising, and would involve severe criticism and rebuke. Later on in January, under the heading "Hotel Physician," appeared an expression of opinion that "the medical man in question has not only disparaged the honorable traditions of the medical faculty, but contravened the well understood rule of modern practice. Need we add that so reprehensible a departure from the professional rule, in face, too, of the protesting dissent of the local practitioners, and in the absence, moreover, of our [self-] solicited opinion, the expression of which was unavoidably delayed for a week, is wholly incompatible with the honor and dignity of the profession, and justly subjects

him to professional reprobation?" *Hinc illæ lachrymæ!* There was no dispute that the plaintiff was the person referred to, and he won his case easily when Sir Dyce Duckworth —the big gun sent down from London to defend Mr. Hart's action—had to acknowledge that his own name, qualifications and address appeared on an insurance-company prospectus, which was widely circulated and hung up in hotels and other public institutions. The twelve good men and true in the jury box were no respecters of persons and failed to see why the provincial general practitioner should not get a certain amount of publicity without having it called "infamous conduct," if the big-wigs in London were allowed to parade in public with impunity. This trial shows the difficulty of laying down any hard and fast rules as to what is and what is not professional conduct; every man must be a law unto himself, for, as a witness said, "it is difficult to see where lamb ends and mutton begins." As there cannot apparently be any settled law, there must be confusion, but ill-feeling might be spared by a larger measure of tolerance in the professional breast and a recollection of Mrs. Poyser's philosophical reflection that "it takes all sorts of folks to make up a world." In the meantime it is clear that on the subject of professional etiquette the *British Medical Journal* will cease to play the part of Jupiter Tonans, and that "A" and "B" as well as "X. Y. Z." must settle their little jealousies and differences amongst themselves.

A paper war has been raging furiously amongst the laryngologists. The apple of discord was thrown upon the board by an article which inquired if such a condition as varicose veins at the base of the tongue really existed, and if they had any connection with throat troubles. In the ensuing correspondence it was made clear that according to some observers this condition occurred in one out of four patients, requiring the application of the galvano-cautery and the expenditure of time, pain, and money. Others as firmly held that dilated veins on the tongue rarely, if ever, cause symptoms or require local treatment. A heated controversy showed that the personal element was not wanting in this scientific discussion, while it was suggested that pecuniary considerations made the veins in question appear larger than they really were, or even produced a mirage of their forms when they did not exist at all!

More paper wars! And this time under the light shed by the cold stars of pure science, where neither the question of professional rivalry nor mercenary motives can bear influence, and yet with as much absence of dispassionate calmness as our country friends "A" and "B" or "X. Y. Z." show in their parochial bickerings. This war has centred round some communications to no less august a body than the Royal Society. Since the great discovery of Claude Bernard it has been generally held that the glycogenic function of the liver was an established fact. This view has always been opposed by Dr. Pavy, who holds that the liver is a sugar-destroying and not a sugar-forming organ, and he has recently reasserted these views in a work on "The Physiology of the Carbohydrates." These theories of Dr. Pavy have been criticised by Dr. Noel Paton, who considers that they rest on no substantial basis and have been refuted by so many investigators that they need no longer be considered. This drew from Dr. Pavy not an article, but an entire book, entitled "Epicriticism," which Dr. Paton could not let pass, and now the two champions of truth are having it out in the journals.

It has been pointed out as a little remarkable that at the present moment, at five of the large general hospitals, pupils of the late Sir William Fergusson are the senior surgeons. They are Christopher Heath (the President of the College of Surgeons), Rose, Lawson, Macnamara, and Barrow.

A query has been raised lately as to the influence of cycling on hemorrhoids. Dr. Oscar Jennings, of Paris, has answered, recommending the exercise most warmly — of course in moderation and in cases where there is no contra-indication—not only as a healthy exercise, but as in many cases actually curative of this condition. Dr. Jennings's book on Cycling and Health should be studied by all who are interested in the exercise which just now is so much in vogue. The book is in the second edition of its English translation, and I knew it more than ten years ago in its original French, before the wheel had become "all the rage" and when the author was looked upon as a pure crank for taking up a sport which in those days was left to "cads on castors."

A simple method of preventing large mammary abscesses has been published by Mr. Walter Spencer. He points out that hot fomentations, poultices, or belladonna plasters must all be a mistake, for all the secondary ducts must quickly be converted into abscess cavities unless the milk be first re-

moved. This is done by forcible expression, if necessary under nitrous oxide gas, although many patients can bear it without an anesthetic. Taking the breast in the hollow of the hands and increasing the pressure very gradually and as uniformly as possible, there first oozes from the nipple a few drops of whey, then a small plug of curd, followed by a stream of milk. From each duct a plug of curd has to be driven before the milk will come. Finally there issue streams of milk in many directions, as water from the rose of a gardener's watering-pot. Directly milk flows, tension is relieved, and further pressure does not cause so much pain. The amount of pressure required when the breast is so over-distended as in the cases alluded to indicates clearly that suction would have been quite inadequate, whilst the fact that each duct was plugged by curd showed why the milk was retained and how inevitable must have been decomposition and suppuration. Afterwards the women are ordered to foment and to squeeze the breast frequently and to take iodide of potassium for a few days.

The same principle is recommended by Brindeau (*Union Médicale*, Feb. 29, 1896), who points out that infection arises through excoriations of the nipples, from the hand of the patient, nurse, or doctor, or, most frequently, direct from the child, as its mouth is full of microbes. After recommending the above method of expression, he points out the importance of cleanliness, of washing out the child's mouth, and antiseptic treatment of the nipple.

Possibly the influence of heredity in incontinence of urine has been overlooked. A case has been recorded where an entire family had inherited this defect from their father. Not a single child was free from it—there were six of them,—although their ages varied from eighteen to five.

Those who might like to try the Nauheim system of baths in this country will be interested to hear that they can now be obtained at Bath. Cardiac cases are thus saved a long journey, and many will prefer a visit to Bath to a sojourn in a German *kurort*. Besides, the baths at Nauheim are given only in the summer, while the season at Bath is rather the spring and fall.

Attention has been called to the want of appreciation by the profession of the value of paraldehyde. It is said to be a wonderfully innocuous drug, easily tolerated, and an exceedingly effective calmative and hypnotic. It is of use also in epilepsy, and of great service in asthma or the asthmatic symptoms of morbus cordis, renal disease, and chronic bronchitis. By some observers it has been recommended in doses of fifteen minims; others prescribe a dose of thirty to sixty drops. A disagreeable feature of the drug is that it scents the breath strongly for twenty-four hours. A point in dispensing it is that the addition of a few drops of alcohol renders paraldehyde perfectly miscible with water; any flavoring tincture can be used for this purpose.

PARIS LETTER.

By Arthur Robert Turner, M.D. (Paris).

In a clinical lecture recently delivered at the Hôpital des Enfants Maladies, Dr. Marfan called attention to a condition often found in nursing infants, to which he gives the denomination of "gros ventre flasque," or "large flabby belly." It is a soft, depressible, spread-out belly—in short, a frog's belly. Percussion gives a dull tympanitic note, while palpation often gives rise to borborygmi but never reveals any induration.

The "large flabby belly" of infants, once formed, has a tendency to persist for years, even to the third and fourth year of life.

It seems to arise in children who have suffered from a series of attacks of chronic gastro-intestinal dyspepsia, revealing itself by alternations of diarrhea and constipation. During these attacks the abdomen is swollen, hard, and tympanitic, especially during the diarrhea. After a certain number of attacks the abdomen no longer diminishes in volume when an attack is over, but remains swollen, though all tension or tympanism vanishes.

Cachexia often accompanies this condition, and even death may ensue, in the latter case the abdomen diminishing in volume previous to the fatal event.

From pathological investigations Dr. Marfan concludes that the cause of the change in appearance of the abdomen following the chronic dyspepsia observed in infants is due to an abnormal lengthening of the intestine, and especially of the small intestine. He finds that while in normal infants under three months the intestine measures, on an average, six times the length of the child, in those who suffer from the peculiar form of abdomen which he describes it measures from eight and a half to ten times the length of the child.

Dr. Marfan wonders whether in such cases, even if the outer appearance subsides, the normal condition of the abdominal contents

is reëstablished, and whether certain dyspepsias of adult life or cases of enteroptosis may not date back to that period.

Some time ago one of the principal medical papers of Paris noted the fact that of 2922 physicians practicing in Paris, 521 were foreigners. This, combined with the crowding of the Faculty of Medicine of Paris, led the authorities here to refuse to receive any more foreign students into the Paris Medical School, requiring them to study at one of the Provincial faculties or schools. This measure, however, called forth protests from the French students, as not being severe enough. They claimed that they should be protected not only from overcrowding in Paris, but also from the future competition to which they would be exposed. They have likewise asserted that in many cases foreign students were allowed to enter the French faculties on presentation of diplomas which were by no means equivalent to the examinations in arts and sciences required in France. The Government accordingly has been considering the matter still further, and it is reported that before long the rules will be made so stringent that no foreigner will be allowed to study in France without having passed the classical and scientific examinations which are imposed upon the French student. It is said, however, that a certain diploma will be granted to foreigners not passing the preliminary examinations, with the important difference that it will not give the right to practice in France, but will merely show that the possessor has studied here and passed the medical examinations. It will be, in fact, "for exportation only."

Whatever may be the measures employed, it is probable that they will be rather rigidly applied.

At a recent meeting of the Société de Dermatologie et Syphiligraphie a case was presented which may be looked upon as unique. It is the first case known of soft chancre of the tongue. A patient presenting three typical soft chancres of prepuce, with bilateral adenitis, observed on the dorsum of his tongue, near the point, a small red painless fissure, of antero-posterior direction. Adenitis similar in character to that of the groin was to be found in the right submaxillary region. Ten days later the patient entered the St. Louis Hospital; the fissure had become an ulceration, rounded in form, from six to seven millimeters in diameter, and shallow, the border slightly elevated, red, nonindurated, and slightly detached, the bottom diphtheroid. The adenitis of both the groin and the submaxillary region terminated in suppuration.

Reinoculations gave typical soft chancres, and bacteriological examination, carried out by Dr. Sabouraud, whose work on Trichophyton is well known, revealed Ducrey's bacillus in the pus and Unna's bacillus in chains in the wall of the ulcer.

Messrs. Legueu and Lévy have obtained excellent results in the treatment of gonorrhea in man, from the use of Airol, a combination of dermatol and iodine.

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After having been long abandoned in France as a means of diagnosis in man, though extensively employed in veterinary surgery, tuberculin has recently been tried by two physicians of Montpellier, Messrs. Grasset and Vedel, for the early diagnosis of tuberculosis in man. In a communication recently made to the Academy of Medicine of Paris, they give an account of the results which they have obtained. In the first place they look upon the doses which have so far been employed as far too large. The dose which they recommend as sufficient for the purpose would seem to be from two to three tenths of a milligramme, injected for two or three days, morning and evening. The solution used must be freshly prepared, as it alters readily. It is made by adding to 200 cubic centimeters of boiled water 1 gramme of a solution containing one part of ordinary tuberculin to ten parts of a five-per-cent. carbolic-acid solution. Each cubic centimeter of the final preparation contains five-tenths of a milligramme of tuberculin. The patient is kept in bed for two or three days before the injection is made, the temperature being taken morning and night. After the injection has been given the temperature is taken as before, only more frequently. Fourteen cases were treated. In no case was any harmful result noted. In one case which was decidedly tuberculous no reaction was obtained, but in several other cases a reaction available for diagnostic purposes was present.

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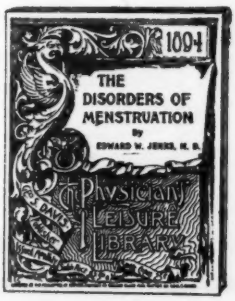

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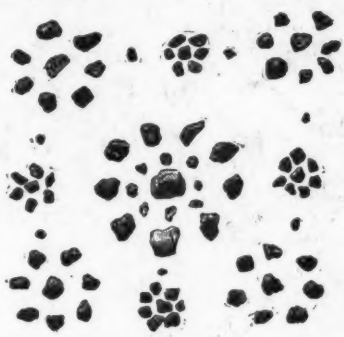

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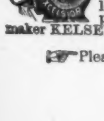

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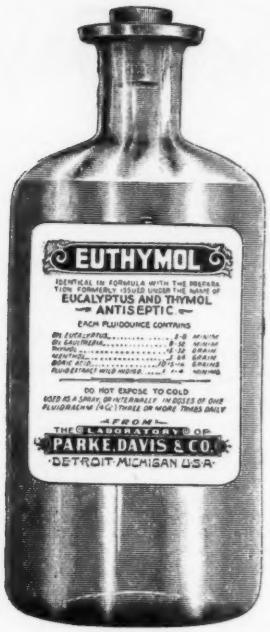
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